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Vol. 96 January 13, 1934 No. 2

In This Issue

Old Tunnel Demolished and Grades Separated Under Traffic.... Page 34

A description of an interesting project on the D. & H. at Whitehall, N. Y., where work, carried out under difficulties, has remedied adverse conditions.

German State Railways Build Alloy-Steel Boilers..... 39

Tells how chrome-molybdenum and copper-manganese alloys are used on 4-6-2 locomotives carrying 368 lb. pressure.

Prosperity by Consolidation?..... 41

J. W. Barriger, III, holds that modern facilities increase the economic advantage of heavy density lines as compared with those of light traffic.

EDITORIALS

The Program of the Labor Organizations..... 31
Instructions as to Signal Indications..... 32
Is Rail Enough?..... 33
The New Speed Demands..... 33

GENERAL ARTICLES

Old Tunnel Demolished and Grades Separated Under Traffic..... 34
C. & O. Has Systematic Public Relations Program..... 38
Freight Car Loading..... 38
German State Railways Build Alloy-Steel Boilers..... 39
Successful P. R. R. Safety Rules..... 40
Prosperity by Consolidation?, by J. W. Barriger, III..... 41
Spring Switch on the St. L.-S. F..... 43

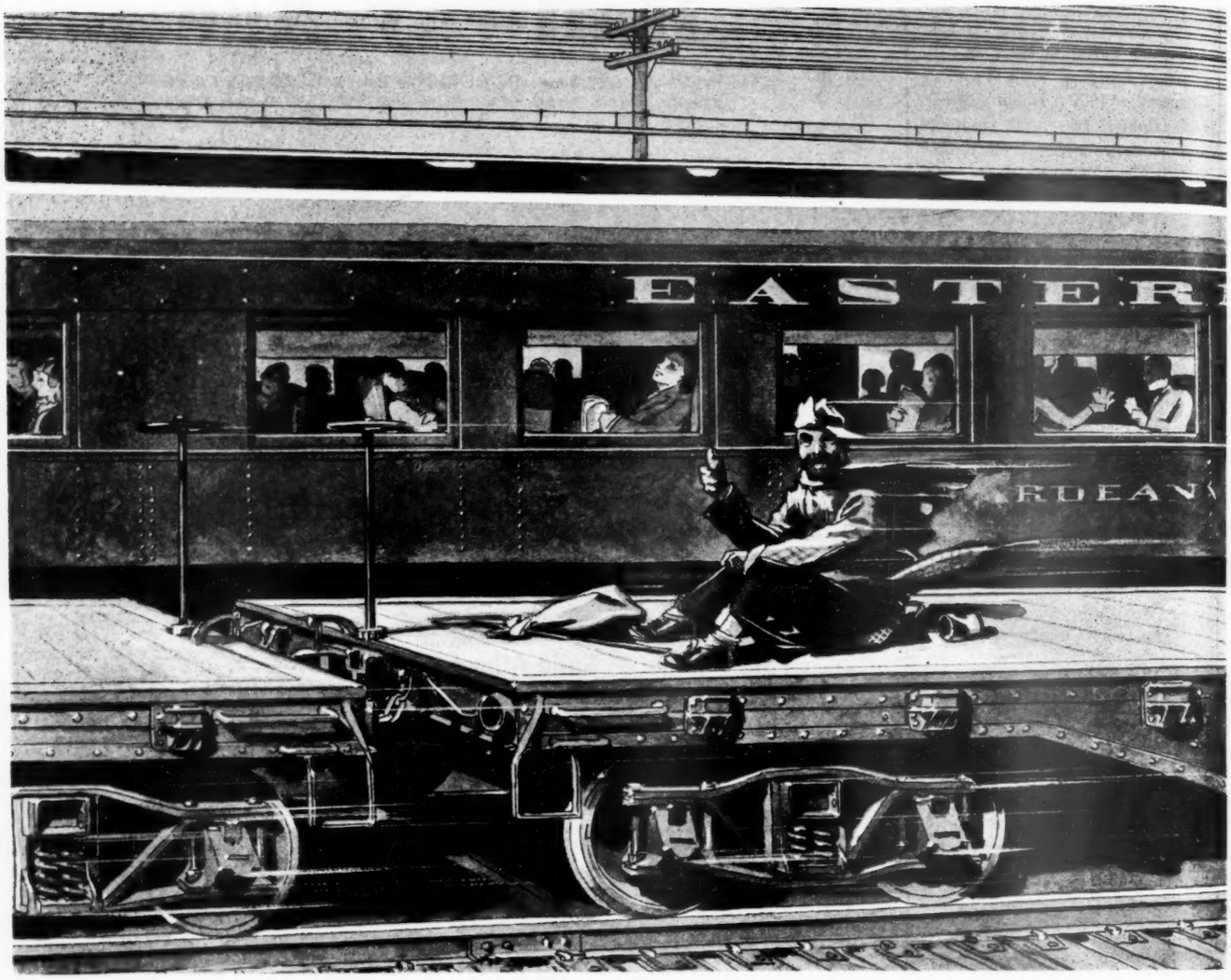
COMMUNICATIONS 45

ODDS AND ENDS 46

NEWS 47

REVENUES AND EXPENSES OF RAILWAYS 57

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service



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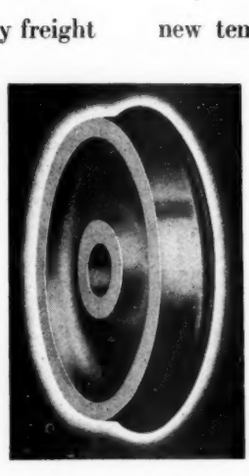

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The Program of the Labor Organizations

A. F. Whitney, chairman of the Railway Labor Executives' Association and president of the Brotherhood of Railroad Trainmen, in a recent interview in New York indicated his intention to urge legislation establishing the six-hour day on the railroads, the purpose being to put 200,000 furloughed employees back to work, and with a threat on the part of the unions to insist upon government ownership if this is not done. The cost to the railroads Mr. Whitney estimated at from $250,000,000 to $300,000,000 annually. The proposed pension legislation would require almost an equivalent outlay, so it appears that the labor executives by these two measures alone expect to extract approximately 500 million dollars additional from the railways, a sum greater than the entire net railway operating income earned in 1933. Taking such an amount would be equivalent to expropriation, since there would remain nothing with which to pay interest or dividends, and railroad securities would be valueless.

Competitors Disregarded

But this is not all that the labor leaders desire. Mr. Whitney indicated also that he expects the 10 per cent reduction in wages to be cancelled in June, which would add a hundred more millions to the railways' burden. In addition, at a recent meeting held by the labor executives' association in Chicago a legislative program was adopted which included among other objectives "payroll reserves," to be set up to continue wages of employees during times of depression, and federal "full crew" and train limit laws.

If it were not for the fact that Mr. Whitney's organization is actively soliciting members among bus and truck drivers, one might think that he had never heard of such a thing as motor truck and bus competition with the railroads—which is as acute as it is in large measure because bus and truck employees work much longer hours and get less compensation than that provided by the railways for their employees. The proposed increases in wage payments to railroad employees would certainly intensify this competition and result in the loss of more traffic to the highways, since they would make it impossible for the railways to grant rate concessions to hold business on the rails and provide employment for railway workers.

Truck Transport's "Unconscionably Long Hours"

The *Railway Age* favors as high a standard of wages and working conditions in the railway industry as the industry can afford, but the industry cannot afford the expense of any substantial amelioration of existing conditions as long as it has to deal with competitors who do not scruple to pay low wages and work their employees long hours in order to make rates low enough to attract traffic away from the railways. In a brief filed with the NRA the American Trucking Associations, Inc., has admitted "unconscionably long hours" for employees, said to be necessary to keep traffic from being attracted away by reduced railroad rates.

The railroads are no longer in a position to fix rates at a level to compensate themselves after meeting all costs of the service, regardless of what those costs may be. If the costs are too high and the rates are consequently excessive, then shippers simply divert their business to agencies of transportation with lower costs and rates.

The railroads are powerless to prevent this diversion of business, and when they lose traffic they also lose the wherewithal to pay wages to employees. No amount of arbitrary legislation fixing railway wages and working conditions at favorable levels can have any real effect in the face of this fact. The only possible safeguard for high labor standards on the railroads is similar standards for employees of competing methods of transport. Unless this can be secured there is slight chance of making effective any costly improvement in the position of railway labor, and existing conditions even are jeopardized.

The principal task of the National Recovery Administration has been to put an end to competition based on "sweated" labor, by which unscrupulous employers were enabled to make low prices and attract

business away from those paying higher wages, with the result that, finally, the fair employers also were forced to lower their standards. The recovery act did not, however, afford this protection to the railroads and railroad labor. In spite of the NRA and its codes, the railways' competitors continue to work their employees longer hours and pay them wages which are but the merest fraction of those received by transportation employees on the railroads.

Why Not Equal Treatment for All Transport Employees?

It is evident, therefore, that an attempt to bring about still more favorable conditions for railroad employees while failing to require equivalent amelioration in the conditions of other transportation labor will prove ineffective and can result only in increasing the competitive disadvantages of the railroads and reducing their ability to employ labor. Not only is it unfair to the railroads to single out them alone of all forms of transportation for such dictation, but it is obviously unjust also to other transport workers to except them from the protecting guardianship tendered to railway labor. What social justification can there be for limiting hours of labor and otherwise protecting railway employees, while leaving other transport employees entirely unprotected? If pensions and unemployment insurance and "full" crew laws are justifiable governmental measures to aid railroad employees, then it is plainly discriminatory not to extend exactly the same degree of protection to bus and truck drivers and bargemen on the inland waterways.

To fail to deal realistically with this situation and instead, to attempt to secure a larger share of railway revenues, disregarding the protection of those revenues so that there will be something substantial to divide, would be an error quite as fatal to railroad employees as it would be to the railroad companies. We do not believe the railway labor executives will make this mistake if they will consider the true interests of their members who are railway employees; and certainly those whose organizations are enlisting bus and truck drivers cannot consistently demand favors for their railway members which they are unwilling to seek for their motor transport members.

Instructions as to Signal Indications

Several train accidents in recent months have again directed attention to the fact that all enginemen do not understand and obey signal indications under all circumstances. When an extensive automatic block signal installation or a section of centralized traffic control is placed in service, it is the usual practice on most roads to conduct a school of instruction for engine and train crews to acquaint them with the meanings of the various signal aspects and with the action to be taken under different circumstances. After placing the signaling in service, the new instructions with reference thereto are included in the next issue of the operating rule book, and in too many cases it is assumed, from then on, that every one concerned knows all about these rules.

If there are grounds for assuming that this is not the correct procedure with respect to signaling placed in service during recent years, is it not an even more serious question concerning signaling that has been in service for many years? It may be possible that some of the men did not understand certain phases of the new signaling when it was placed in service, and they may never have had the opportunity since to clear up the confusion in their own minds. Furthermore, new men are being promoted to enginemen, conductors, trainmasters and dispatchers. Questions have been raised by one officer as to who instructs the enginemen concerning signal indications on the average road; what does the instructor know about the subject, and who instructs the instructor? Is instruction concerning signaling as important as instruction with reference to air brakes?

For a number of years one important road maintained a signal instruction car in charge of an instructor who was formerly a signal supervisor. This car was set out at various division points, and all concerned were required to attend classes and enter into discussions on features not thoroughly understood. On another road a signal inspector was appointed to the position of signal instructor, and it was made his duty to co-operate with enginemen, trainmen, road foremen of engines, and trainmasters in discussing the meaning of signal aspects and instructions with reference thereto. A small portable cabinet, containing operating models of signals, was used for demonstration purposes at meetings held at various division points.

These two examples are typical of the type of uniform instruction which might well be instituted on many roads.

It might be contended that on account of reduced traffic, the enginemen now in service are all "old heads" and understand the signaling thoroughly. However, surprises might develop if these men were given the opportunity to ask questions in an open meeting where they would feel free from criticism. After all, the enginemen are really the "consumers" of the signaling, and it is possible that they may be able to point out to signal engineers and operating officers questionable similarities or duplications of aspects which cause undue confusion, and which can be corrected. Is it not better to clear up questions of doubt in open meetings rather than in investigations of accidents?

Is Rail Enough?

Much attention has been given during recent weeks to the determination of the needs of the railways for new rail and orders for upwards of three-quarters of a million tons have already been placed or are in process of financing or of purchase. With the fastenings that must necessarily follow, these orders constitute a very sizable purchase—exceeding a million tons and an outlay of some $50,000,000 for these materials alone. With purchases of equipment necessary to place the rail, and with other incidental work, the expenditures will be increased still further.

That this material is needed and its purchase justified is universally recognized. An analysis of rail replacements during the last three years, in which due consideration was given to the decrease in the rate of wear with the decline in traffic, indicates that it will be necessary to apply some 3,400,000 tons to restore the properties to their 1929 condition. It is a fact also that the profound decline in rail purchases has been a major contribution to the slump in steel operations. It was in recognition of this fact and with a desire to increase employment in a sorely distressed industry that the President and the co-ordinator initiated the suggestion that the railways purchase rails.

But is the purchase of rails enough? It is true that rails provide the immediate support for traffic and that without rails of adequate strength trains cannot be moved safely. But a track is no stronger than the ties that carry the rails, and ties deteriorate almost as rapidly in periods of depression as in those of industrial activity, whereas rail wear is lessened in almost direct proportion to the decrease in traffic. Therefore, while rail deterioration has been materially reduced during the last four years, the deterioration of ties has proceeded practically unabated.

Yet, the renewal of ties, like that of rail, has been drastically curtailed, with the result that there are in track today more than 75,000,000 ties that would, under more normal conditions, have been renewed. And as yet, relatively little attention has been given to their replacement. But, it may be said, the production of ties does not contribute so largely to employment. If mass employment in large industrial centers is considered, this is true. But the typical crosstie is still a hewed tie, cut by hand from a tree which has been felled by a lone woodsman. Furthermore, its production is distributed over a wide area in regions where little other employment is available. Nothing will give a greater stimulus to these areas than the placing of orders for ties.

The same reasoning applies to a variety of other track materials. Rail is an essential to the track. Without ties, frogs, switches, crossings, ballast, drainage and a host of other accessories, however, it is of little value. It is proper that a start has been made with rail, but the importance of these other facilities must not be overlooked.

The New Speed Demands

Train speeds are occupying much of the thought of railway officers just now, and properly so because competition from other carriers is one of the most important problems of the day and speed is one of the chief talking points of railway competitors. There is much discussion of how fast passenger and freight trains need to be operated and at what speed they can be operated.

How are 100-miles-an-hour passenger trains going to get along on the same line of railroad with slow freight trains; what about the grade crossing problem as it is affected by trains of high speed; how far can railways go in approaching passenger train speeds with many of their freight trains; to what extent can terminal delays to both passenger and freight trains be reduced or eliminated; what changes in roadbed and fixed facilities, as well as in rolling stock, are necessary to render safe and smooth the operation of trains, both passenger and freight, at speeds 50 to 100 per cent in excess of those normally considered to be maximum within the recent past: These are some of the questions which are currently challenging the thought, ingenuity and resourcefulness of railway men.

Gearing up railroad operation to the extent now under consideration is obviously a job which will be accomplished neither quickly nor easily. Too many readjustments in railway equipment and railway methods will first have to be made. These readjustments will extend, furthermore, through virtually every department of railroading, rendering the task even more complex. At the outset, at least, considerable expense will be involved.

Is the end—much faster freight and passenger transportation—worth the trouble and the expense? Certain it is that with several kinds of transportation bidding for the nation's freight and passenger traffic, the traffic will seek and use the kind of transportation furnishing the greatest speed. Traffic always has sought speed and it always will. Hence, if the railways want the traffic which has been taken away from them by faster forms of transportation, they must overcome the advantage of their competitors by speeding up their own service. It appears, also, that the volume of this competitive traffic is sufficiently great and the revenue to be obtained from it sufficiently large that the railroads cannot afford to refrain from spending the energy and money necessary to recover and retain it.

The railways still have the principal part of the transportation burden. Probably they will continue to be the backbone of transportation. But their competitors are steadily nibbling at traffic which still remains with the railways and they will continue to do so, with results which cannot be forecast. Speed is one of the keenest weapons of these competitors, and speed is what shippers and travelers have learned to want. In their own interest, and in spite of whatever difficulties, the railroads must provide it.

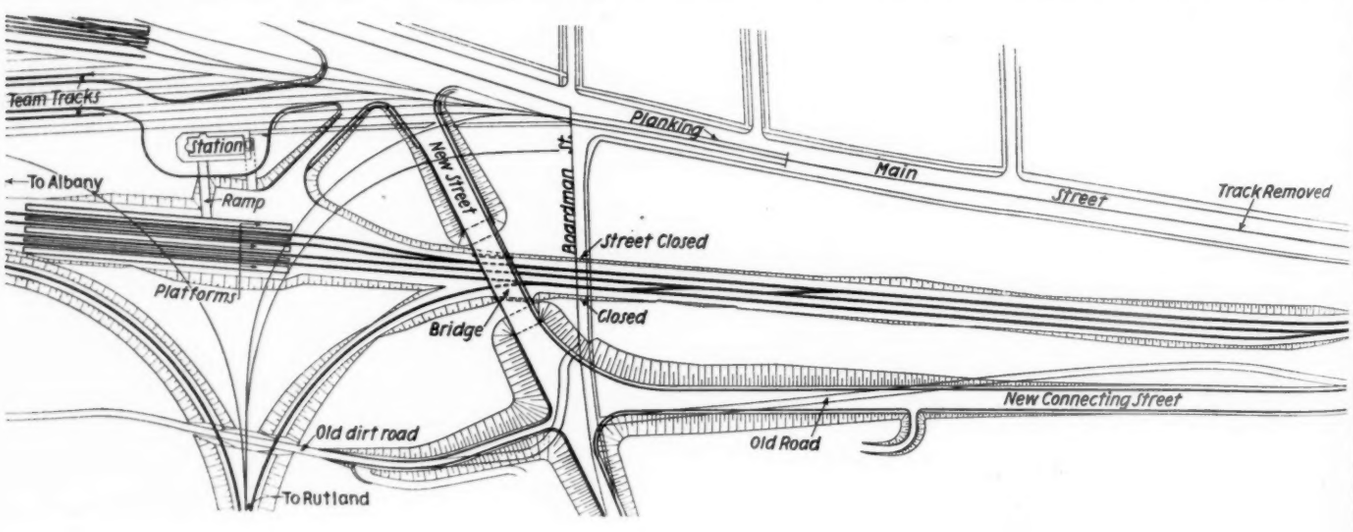
The Track Layout at Whitehall was Formerly on the Opposite Side of the Station Building

Old Tunnel Demolished and Grades Separated Under Traffic

Interesting project on the Delaware & Hudson at Whitehall, N. Y., carried out under difficulties, has remedied adverse conditions

ONE of the most effective and interesting improvement projects that has been carried out on the Delaware & Hudson during the last few years has been completed recently at Whitehall, N. Y., about 77 miles north of Albany, where, in a combined effort to improve existing railway facilities and to eliminate grade crossings, a 677-ft. single-track tunnel was uncovered and the cut double tracked, line changes removed the tracks from a city street for about 1,000 ft., and several grade crossings were eliminated by street alterations and the construction of overhead bridges. As a result of the work, adverse railway operating conditions were corrected and, with all grade crossings within the town eliminated, both local and through highway traffic have been greatly benefited.

Prior to this work, the railroad extended northward on the west side of the passenger station, crossed Boardman street, and then continued as a single track up through the center of Main street, an important street on a through traffic route, for a distance of approximately 1,000 ft. Just beyond the point of divergence of the street and the railroad, or approximately 2,500 ft. north of the passenger station, the track passed through an old single-track tunnel, 677 ft. long, which caused a bottle neck in the two-track main line. Over the tunnel, the railroad was crossed in succession by Saunders, Division and High streets and, about 175 ft. north of the north portal, the single track was crossed at grade by Bellamy street, which is at the north limits of the town in this vicinity. Another street, Church street, extended partially over the tunnel longitudinally, branching off from Main street at the point where the track left that



General Plan Showing the Track and Street Changes Made Through the

street to enter the tunnel, and continuing up over the side hill, parallel with and partially over the old tunnel. This street, which was of secondary importance, extended north to just beyond its intersection with High street, from which point it swung to the northwest and continued to a connection with the state highway to points north.

Many Changes Made

In the improvement project, which, including property damages, cost approximately $1,400,000, the main line for approximately 7,300 ft. south of the tunnel was moved to the east a maximum distance of about 200 ft. This change completely removed the track from Main street, and, incidentally, brought the new line along the opposite side of the passenger station at a lower level. The old tunnel, except for 241 ft. at the south end, was made a two-track open cut, retained on the west side by a high concrete wall. The 241-ft. section, which was in very unstable ground, was replaced by a two-track reinforced concrete box, which not only insures stability of the railroad in this section, but also acts as a bridge to carry both Saunders and Division streets over the tracks. High and Bellamy streets were both closed on each side of the tracks, but another street between these two, Clinton avenue, formerly closed at the right-of-way, was widened and improved and carried over the new railroad cut on a girder bridge.

Just north of the station, the old Boardman Street crossing was closed and a new street was extended over the tracks on a girder bridge. Immediately east of the tracks, this new street joins with a newly constructed north and south street which extends north to a point of connection with Main street on the east side of the tracks.

The provision of this new route made it unnecessary to continue the track crossing of Main street and thereby greatly simplified construction, since, because of the topography of the ground and the sharp angle of Main street with the railroad, about 30 deg., a bridge in this location would have been unusually long and expensive. Furthermore, it would have presented many difficulties to highway traffic.

While the improvement of Clinton avenue in connection with the street changes already mentioned afforded a through route north and south without grade crossings, an even more direct route was afforded by the improvement of Church street, paralleling the west side of the railroad in the vicinity of the old tunnel. This street, which was widened to 36 ft. and paved, now forms a practically straight link for through highway traffic between Main street, on the west side of the tracks, and the state highway north of the town.

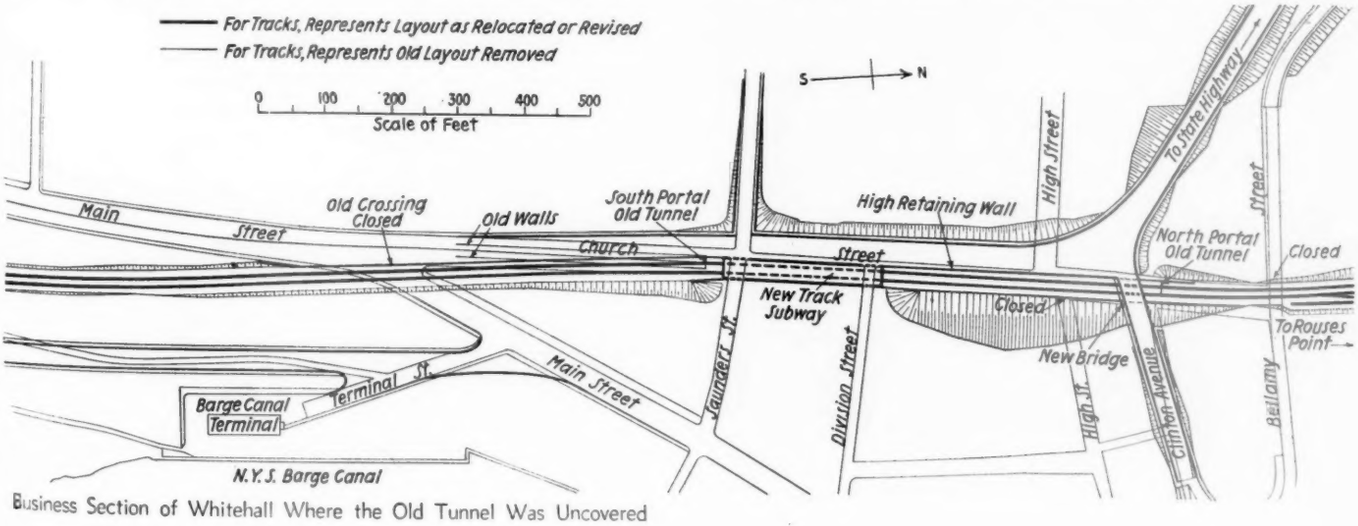
Looking South Through a Section of the New Double-Track Open Cut That Replaces the Old Tunnel

Changes Required in Passenger Station

In the line change at Whitehall, the relocated tracks were placed in a cut, which is about 12 ft. lower at the passenger station than the old tracks. With only slight alterations, the existing passenger station was adapted equally well to the shifted track layout, the principal change being the construction of a concrete ramp about 85 ft. long, down to the new track level.

Four tracks are provided in the new station layout, including the two mains, a running track on the side away from the station, and a relatively short station siding, connected at both ends to the southbound main. Three new platforms, each 400 ft. long, serve the station, these being provided with arcades in the immediate vicinity of the ramp from the station, which will also be housed in to afford passengers protection from the weather in passing to and from trains.

Other track changes made at Whitehall include major alterations in the old freight yard facilities directly west of the passenger station, the construction of a new 570-car freight yard further to the south, and the relocation



Business Section of Whitehall Where the Old Tunnel Was Uncovered

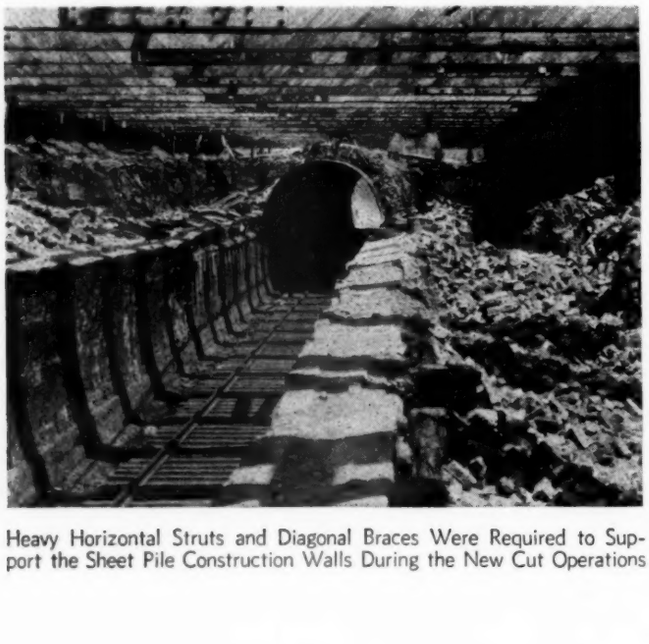
of the road's wye connection with its branch to Rutland, Vt., which was made necessary by the station track changes. The yard changes west of the station, which were essentially to permit the construction of a large paved station approach, consisted principally of stubbing all of the old yard and auxiliary freight tracks where required to provide the new plaza area desired.

Old Tunnel Uncovered

While the improvements and changes described completely modernized the railroad facilities at Whitehall, with especially important advantages to the town and highway traffic, the most important phase of the improvement from the standpoint of the railway, and the most interesting from a construction point of view, was the tunnel elimination work. The tunnel, built in 1843 by the Rensselaer and Saratoga Railroad, was 677 ft. long and, as constructed, had a horse-shoe shaped brick lining, 30 in. thick, supported on low stone masonry bench walls. Contrary to usual tunnel construction methods, the tunnel was not drilled or holed through the side hill. Rather, an open cut was first made to permit the construction of the masonry lining, and then the original ground level, as high as 40 ft. above the arch at one point, was restored by back filling.

Much of the original lining still remained at the time of the recent work, having been repaired from time to time, but, owing to unstable foundation or local failures, three sections of the old lining had been completely rebuilt at different times. The first of these sections, about 80 ft. long and extending north from a point about 70 ft. from the south portal, was built in 1873. Here, failure was caused by the giving way of the soft blue clay sub-soil so prevalent in this territory. In repairing the failed section, an entirely new lining was provided, consisting of high massive masonry bench walls with a semi-circular brick arch, 30 in. thick, supported on a heavy timber grillage continuous over the floor of the tunnel from back to back of the walls. The second lining failure to be repaired extended over about 90 ft. near the north end of the tunnel, while the last portion of the tunnel to require complete renewal of the lining was within the first 70 ft. from the south portal. Repairs in these sections were made in 1885 and 1886, respectively, and, while of heavier construction than the original, timbering of the tunnel floor was not required or resorted to.

To remove the tunnel and widen out to a two-track cut was recognized at the outset to be a difficult problem, first because of the necessity for maintaining unrestricted train operation throughout the work, and also because of the unstable character of the ground support for the high retaining walls, which it was known would be encountered. However, all of these difficulties were met successfully in an effective manner.

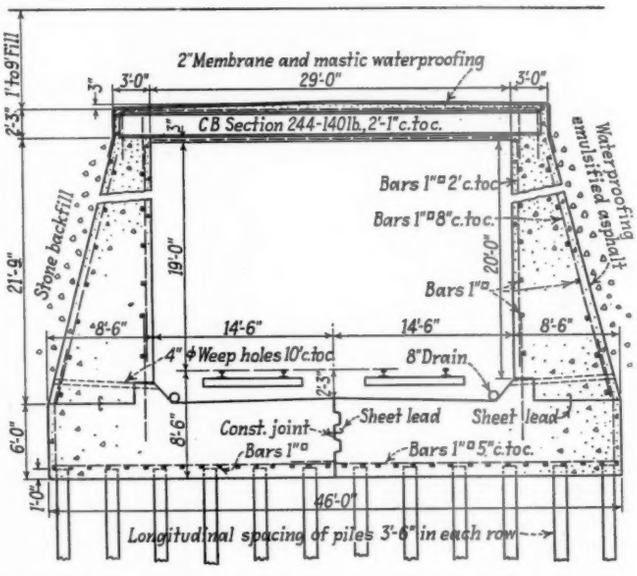


Heavy Horizontal Struts and Diagonal Braces Were Required to Support the Sheet Pile Construction Walls During the New Cut Operations

Massive Box Subway Required

In the finished work, the old tunnel is replaced by a two-track open cut through the hill, except for 241 ft. near the south end, where, because of the particularly unstable condition of the ground and the presence of several sizable buildings directly alongside the east right-of-way line, it was necessary to construct a massive two-track concrete box subway, with an invert 6 ft. thick to afford stability. The roof of the subway is made up of 24.4-in., 140-lb. CB-section beams placed 25 in. center to center and entirely encased in concrete. This supports an earth back fill of from 2 to 8 ft., paved over in part and made to carry Saunders and Division streets across the tracks.

A high mass-type concrete retaining wall was provided throughout the open cut along the west side, the deep side and that supporting Church street which lies directly alongside its top edge. The east side of the cut, on the other hand, was sloped back on an angle of 1½ to 1,



Section of the New 241-ft. Concrete Box Subway Replacing a Part of the Old Tunnel in Soft Ground at the South End

supported only by a low concrete toe wall and by wing walls at the ends of the subway section.

The massiveness of the subway structure, with its six-foot invert slab supported on timber piles, is indicated in one of the accompanying drawings. The inside section of the subway provides a clear width of 29 ft. between wall faces and a vertical clearance of 19 ft. above the top of track rails. The size and relation of the west side retaining wall with respect to the old tunnel section is shown in another of the drawings. The maximum height of wall constructed is approximately 40 ft. from foundation to cap.

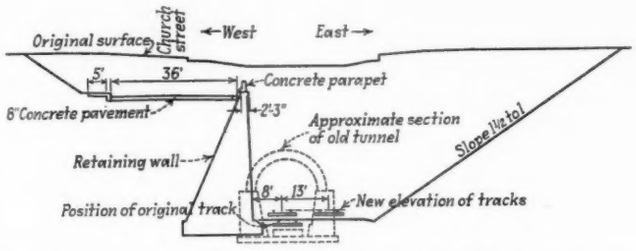
While not indicated in the latter drawing, a considerable length of the high retaining wall, like the subway section, had to be supported on timber piles. This was largely at the south end where the more unstable ground conditions were encountered. Forty-foot piles were used

and were driven to rock, except toward the extreme south end of the wall where piles of this length would not reach rock. Here, however, the reduced height and weight of the wall made it unnecessary that the piles bear on rock.

Details of Procedure in Tunnel Work

In carrying out the tunnel uncovering work, the first operation was to remove the overburden, using steam shovels and motor trucks. When close to the tunnel arch, continuous faces of steel sheet piling were driven along both side limits of the work to support the earth sides as excavation continued, these being placed sufficiently far apart to permit the full construction of the box subway and the retaining walls. Then excavation continued down to the tunnel arch, following which horizontal timber braces, or struts, on 10-ft. centers, were extended between the tops of the sheet piling walls, where required, to assist in resisting the lateral earth pressures on the walls.

With the walls thus braced, the brick arch ring was dismantled by jack hammers, while train operation with-



Typical Cross Section of the New Open Cut Which Replaces the Old Tunnel North of the Concrete Box Subway—Note Relation of New Retaining Wall to Old Tunnel, and New Position of Church Street

in the tunnel, directly beneath this operation, was protected by a steel shield. As the arch roof was removed, diagonal timber braces were set up between the horizontal braces, extending from pile wall to pile wall, sloped alternately in opposite directions and as steep as possible without interfering with train operation. At the south end of the tunnel, where the especially soft and unstable clay was encountered, special built-up strut braces, placed horizontally and provided with lateral bracing, were employed.

The steel shield used within the tunnel during the dismantling of the roof arch was about 50 ft. long and was given support on the stone side walls or on posts set back into the walls. This shield was made up of steel liner plates, designed especially for this class of work, which were bolted together to form rigid continuous centering. As the arch was dismantled, exposing the steel shield, the exposed plates were taken down and re-erected ahead within the tunnel. Owing to the shallowness of the liner plates, clearances within the tunnel were reduced by only about two inches, a factor which was of large importance because of the already restricting clearances.

Following the removal of the tunnel arch and the haunches, which was done with a clamshell bucket, the track was shifted as close as possible to the west wall and a continuous row of relatively short steel sheet piles was driven along the center-line of the tunnel cut, with its top about flush with the old tunnel floor. With this additional piling in place, the old east wall of the tunnel was broken down in short sections, the cut was widened out, and horizontal timber braces were placed at intervals between the sheet piling on the east side and the piling through the center of the cut. As this work was completed, the east wall of the new concrete box subway and

Removing the Old Tunnel Arch While Steel Liner Plates Protected Train Movements

the low east side retaining wall were constructed. Upon the completion of these and the east half of the new subway invert, the track was shifted as far as possible to the east side of the cut and similar operations were carried out on the west side. Later the subway roof was constructed and backfilled, Saunders and Division streets were extended over the subway, the new girder bridge to carry Clinton avenue was erected, and the second main track was laid.

In connection with the improvements described, new signaling facilities were provided through the track area affected. The switch at the new end of double track, 300 ft. north of the station, was equipped with a power-operated machine which, together with the signals for directing train movements, is controlled remotely by a four-lever C.T.C.-type of control machine located in the operator's office at Whitehall. Automatic block signals were installed on the new section of double track to connect up with the signaling on either end.

The work at Whitehall was planned and carried out under the direction of James MacMartin, chief engineer of the Delaware & Hudson, represented in the field by Edward Penrose, resident engineer. The signaling equipment was furnished by the General Railway Signal Company and was installed by Delaware & Hudson forces under the supervision of A. H. Rice, signal engineer. The general contractor on the work was the Hecker-Moon Construction Company, Cleveland, Ohio.

A PROPOSED CODE OF FAIR COMPETITION for the wholesale fresh fruit and vegetable distributing industry was considered at a public hearing in Washington on January 8. The code, proposed by the National Fresh Fruit and Vegetable Council, would affect, among others, approximately 15,000 wholesale dealers in fruits and vegetables who are licensed under the Perishable Agricultural Commodities Act. It is also claimed, says the Agricultural Adjustment Administration press release announcing the hearing, that approximately 5,000 additional firms are engaged in this business without license and would be affected by the code. The unlicensed operators are principally those engaged in distributing fruits and vegetables by motor truck without a fixed place of business, the A. A. A. release adds.

C. & O. Has Systematic Public Relations Program

THE Chesapeake & Ohio has an organized plan on a system-wide basis for public relations work which has been in effective operation for over ten years. The purpose of the plan is, of course, to promote co-operation and good will among employees and the public with whom they come in contact. To do this the company recognized the necessity for having regular means of contact with employees, in order to inform and educate them intelligently to combat any misunderstanding or sentiment antagonistic toward the railroads. To this end in 1923, a public relations committee was organized in each county through which the road operates in Virginia, West Virginia, Kentucky, Ohio and Indiana. These county committees are the main reliance in carrying on public relations activities, and during the ten years of their existence some of them have developed into units which have become invaluable to the company for this purpose.

Each committee, its membership including company surgeons, attorneys, agents, ticket sellers, and other employees at various points in the county, is headed by a chairman recommended by the superintendent having jurisdiction in the territory, subject to approval of the vice-president and general council, or the assistant to vice-president in charge of public relations. There are 62 county committees, having a total membership of about 600 employees. The numbers on the various committees vary, depending upon the size of the county and the extent of the company's local interests. In some instances, a consolidation of two or three committees is made, headed by one chairman.

The central public relations office sends to the chairmen from time to time, for distribution to each member of the committees such publicity material as is believed to be of value to the railroads from the public's standpoint. Each month the assistant to vice-president in charge of public relations prepares and sends to the chairmen for distribution a memorandum known as "Facts to Talk About," which covers current news of the railroad. It is the duty of the chairmen to call regular meetings of their committees each month, and special meetings as occasion may arise, sending a report of such meetings to the public relations department. A separate file is kept in this department for each county, and in this way it is possible to keep a close check on what each committee is doing.

In 1930 the company had its first annual public relations conference for the entire system, and the second in 1931. None was held in 1932, but a very successful conference was arranged for in the fall of 1933. Before 1930 the company held separate conferences on each division. The delegates attending the conferences are the chairmen and one or two members of each committee designated by the assistant to vice-president in charge of public relations. Usually those are selected who have not attended previous conferences.

The membership of each committee is revised once a year, eliminating inactive members and adding new ones, the purpose being, of course, to maintain the highest standard of efficiency and activity. When the revision was made in 1933 a woman employee was selected for each committee, where possible, who was actively connected with women's social and political clubs in her county. Some of the addresses which were heard at

(*Continued on page 44*)

Freight Car Loading

WASHINGTON, D. C.

COMPLETE reports for the year show that 28,960,910 cars were loaded with revenue freight in 1933, an increase of 780,958 cars, or 2.8 per cent, over the number loaded in 1932, but a reduction of 8,190,339 cars, or 22 per cent, under 1931.

Total loading by commodities in 1933 compared with 1932 was as follows:

	1933	1932	Per Cent Increase
Grain and Grain Products	1,654,405	1,653,381	.06
Live Stock	886,141	949,287	6.7*
Coal	5,615,935	5,338,938	5.2
Coke	295,544	223,766	32.1
Forest Products	1,085,592	899,198	20.7
Ore	700,286	210,367	232.9
Merchandise, L.C.L. Freight	8,428,384	9,069,736	7.1*
Miscellaneous	10,294,623	9,835,279	4.7
Total	28,960,910	28,179,952	2.8

* Decrease.

Loading of revenue freight for the week ended December 30 totaled 450,622 cars. This was a decrease of 76,445 cars below the preceding week, but an increase of 45,321 cars above the same week in 1932. It was, however, a decrease of 52,105 cars below the corresponding week in 1931. Both 1933 and 1932 included Christmas holiday and 1931 included New Year's holiday.

All commodity classifications except coke showed decreases as compared with the week before but forest products, ore, coal and coke showed increases as compared with last year. All districts showed increases as compared with the corresponding week of last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

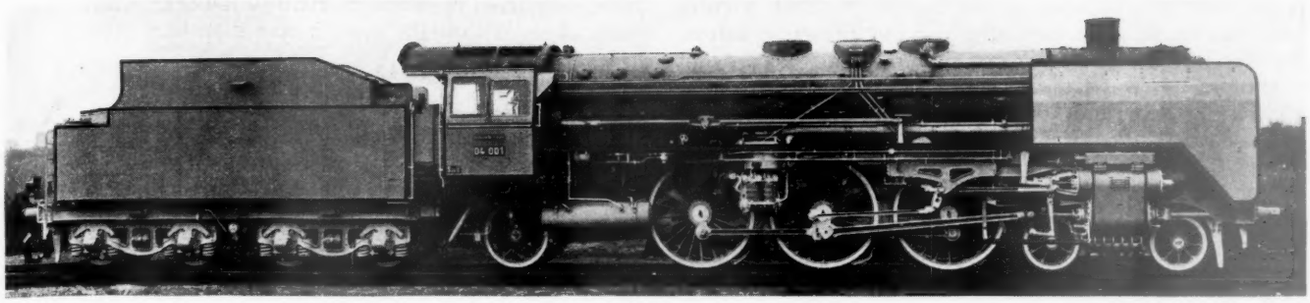
Week Ended Saturday, December 30, 1933

Districts	1933	1932	1931
Eastern	105,766	95,626	117,234
Allegheny	90,840	79,692	100,889
Pocahontas	30,908	29,645	29,659
Southern	67,262	60,020	75,709
Northwestern	51,475	44,198	53,132
Central Western	66,896	60,088	76,394
Southwestern	37,475	36,032	49,710
Total Western Districts	155,846	140,318	179,236
Total All Roads	450,622	405,301	502,727
Commodities			
Grain and Grain Products	20,325	21,982	23,960
Live Stock	11,682	13,375	18,301
Coal	114,284	98,985	106,429
Coke	7,100	4,311	5,839
Forest Products	11,695	9,445	13,721
Ore	2,078	1,433	2,289
Merchandise L.C.L.	124,361	127,028	149,502
Miscellaneous	159,097	128,742	182,686
December 30	450,622	405,301	502,727
December 23	527,067	494,510	440,899
December 16	554,832	515,769	581,170
December 9	537,503	520,607	613,621
December 2	495,425	547,095	636,366
Cumulative Total, 52 Weeks	28,960,910	28,179,952	37,151,249

Car Loading in Canada

Car loadings in Canada for the week ended December 30 totaled 29,360, which was an increase of 4,289 over the last week in 1932, according to the compilation of the Dominion Bureau of Statistics. This total compares with 35,623 loadings in the week ended December 23, but the decline was less than seasonal and the index number rose from 61.77 to 64.04.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Dec. 30, 1933	29,360	14,269
Dec. 23, 1933	35,623	18,696
Dec. 16, 1933	38,888	18,574
Dec. 31, 1932	25,071	14,271
Cumulative Totals for Canada:		
Dec. 30, 1933	2,032,157	956,573
Dec. 31, 1932	2,173,087	973,235
Dec. 26, 1931	2,575,450	1,282,623



German State Railways Modified Standard Pacific Type Locomotive with Boiler of Alloy Steel

German State Railways Build Alloy-Steel Boilers

Chrome-molybdenum and copper-manganese alloys are used on 4-6-2 locomotives carrying 368 lb. pressure

BESIDES the development and testing of the types of locomotives, such as turbine and high-pressure locomotives, Diesel-geared locomotives and Diesel-electric rail cars, the administration of the German State Railways has devoted its attention to the development and improvement of the ordinary steam locomotive.

A considerable step forward in this direction has been the creation of the well-known standard locomotives, which, on account of their suitable design, already have effected a considerable saving in fuel and in the cost of upkeep. However, in order to attain a further improvement of efficiency it appeared advisable to increase the working pressure and steam temperature.

The German State Railways had already gained experience with a boiler pressure of 323 lb. per sq. in. An increase up to 368 lb. per sq. in. appeared to be advisable and practicable by applying the experience with alloy steels of high heat-resisting capacity suitable for boilers. This new material for boilers has now been used in building the two 4-6-2 express locomotives of 368 lb. boiler pressure, the 0-4 type of the German State Railways. These have been built by the locomotive works of Fried. Krupp A. G. at Essen. One of the boilers for these locomotives has been built up of plates and staybolts made of chrome-molybdenum steel, the other of copper-manganese steel. The figures giving the tensile strength of these steels are given in the table.

	Alloy steel	
	Chrome-molybdenum	Copper manganese
Tensile strength	73,800 lb. per sq. in.	73,800 lb. per sq. in.
Yield point at 225 deg. C.	51,100 lb. per sq. in.	41,160 lb. per sq. in.
Elongation at 20 deg. C.	20 per cent	22 per cent

Unlike the chrome-molybdenum steel, the copper-manganese steel is only a little higher in price than the material usually employed in building boilers, for which reason its testing appeared to be particularly advisable.

The fireboxes of the boilers have been made of Krupp type Izett I steel, which has special properties of resistance to aging, whereas the staybolts consist of the same material as that of the boiler in which they are applied.

For the purpose of finding out the most satisfactory type of superheater one boiler—namely, that made of chrome-molybdenum steel—has been manufactured with tubes of 22 ft. 1 in. in length and a standard superheater. All other parts of the locomotives are identical.

Locomotives Are Modified Standard Types

The high-pressure cylinders of cast steel with cast-iron liners are arranged within the frame and drive upon the first axle. The outside low-pressure cylinders of cast iron drive, on the contrary, upon the second axle. The right-hand high-pressure crank moves in the opposite direction to the right-hand low-pressure crank pin, the left-hand high-pressure crank in the opposite direction to the left-hand low-pressure crank pin. Steam distribution is effected in the high-pressure cylinders by piston valves of the usual German State Railways type; in the low-pressure cylinders by piston valves with double admission and exhaust. The valves of the low-pressure cylinders having exterior admission are directly driven by Heusinger link motion. Each high-pressure valve with interior admission is controlled by a transmission shaft from the outside link motion.

Principal Dimensions of the Locomotive

Cylinders, diameter:	
High-pressure	13¾ in.
Low-pressure	20½ in.
Stroke	26 in.
Wheels, diameter:	
Driving	78¾ in.
Engine	39⅜ in.
Trailing	49 2/16 in.
Wheelbase:	
Driving	14 ft. 9 3/16 in.
Total engine	38 ft. 6 7/16 in.
Boiler pressure	368 lb. per sq. in.
Heating surface:	
Tubes and flues	1,978 sq. ft.
Firebox	214 sq. ft.
Total	2,192 sq. ft.
Superheater	910 sq. ft.
Combined total	3,102 sq. ft.
Grate area	44.1 sq. ft.
Weights:	
On drivers	108,240 lb.
Engine in working order	241,400 lb.
Engine, light	222,000 lb.
Tender wheelbase	18 ft. 9 in.
Water capacity	7,540 gal.
Coal capacity	11 tons

Regulation of admission at the control bracket is common both to the high-pressure and low-pressure valves. The maximum admission amounts to about 80 per cent in running forward and backward.

High-pressure and low-pressure cylinders are fitted with by-pass valve of a special design formed as tube valves. They are operated by compressed air from the cab.

The locomotives have been subjected to a number of trial runs, resulting in a saving in steam consumption up to 20 per cent as compared with the four-cylinder compound superheated steam locomotives of similar size. Among others trial runs were made with a continuous speed of 74.4 m. p. h., hitherto made in Germany with no other type of locomotive.

Successful P. R. R. Safety Rules

ON the Pennsylvania Railroad the operating officers are required to enforce the safety rules with the same care, regularity and strictness that they do the rules in the regular operating rule book. For example, walking through escaping steam which obscures the vision is prohibited, and violation of the rule lays the violator open to discipline, on the same principle as in other prohibited practices. Readers interested in this subject will recall the establishment of this safety-rule-book of the Pennsylvania in October, 1929, as reported in the *Railway Age* of that year, pages 1179 and 1203. The book has now been revised and the number of rules more than doubled.

Operating officers find that the experience of these four years has amply demonstrated the wisdom of giving the definiteness of the printed page and formal book to these varied and hard-to-formulate rules of conduct. Instead of studying the language and confusing oneself by too much variety of expression, the editors of the rules have, in a great number of cases, introduced the "shortened process" of printing "this is prohibited"; nothing more. The problem of the examining officer is thus at one stroke made as simple as possible. These years of experience have confirmed the appropriateness of the style of language used, and the idea has now been adopted more extensively.

These rules, like most of the standard rules dealing with train and yard service, are at bottom *guides to oral instruction*, and therefore are not to be too strictly criticized as to form or fulness. Any workman, having any question whatever, is in duty bound to go to his superior and have every obscurity fully elucidated.

The records of the Pennsylvania show the casualties to men in train and engine service in the 12 months of 1929, to be 19.42 per million man-hours, and in 1930 this annual rate was reduced to 11.96. There has been continued improvement, and in 1932 the average had been brought down to 9.68 or more than one-half in three years; and 1933 is doing still better.

Below are reprints of some of the shortest of the 203 rules in this latest issue of the book. Although, as intimated, a rule may be claimed to be incomplete, requiring a visit to the foreman or the instructor for amplification, a perusal of a few pages shows that any employee can derive marked benefit from reading them just as they stand. Moreover, an examination of the records of the Interstate Commerce Commission would show that every smallest point in the hundreds of dangerous situations here referred to or suggested, or imagined, has figured in one or more actual personal injuries, reported by some railroad to the government; and quite likely within the past twelve months.

EXAMPLES OF PENNSYLVANIA RAILROAD SAFETY RULES

1008. Using finger in hole at bottom of coupler to adjust lock pin, is prohibited.
1022. While riding on engine or car, operating coupler release lever on car or engine other than the one on which riding, is prohibited.
1113. Loading coal on tender while a passenger train is passing on adjacent track is prohibited.
1131. Operating injector without knowing that the sprinkling hose valve is closed is prohibited.
1140. Using hands to remove coal from around fire doors is prohibited.
1142. While on running board of engine, maintain secure hand hold.
1207. Before putting heavy stress on brake club, try it to determine it is in firm position in wheel.
1215. Using any part of an adjacent car for foot rest when applying or releasing brake, is prohibited.
1305. (Operating Switches)—Brace body firmly, avoid any twisting movements and lift or pull steadily on lever, to avoid sprain or strain.
1407. When getting on or off moving equipment, avoid if possible, coal, boards, stones, rubbish, refuse material, ties, rails, ballast, holes, openings, bridges, culverts, trestles, etc., likely to result in falling, slipping, tripping or turning ankle.
1412. While going up or down ladders on cars or tenders, keep foot turned slightly sideways and place portion of balls of feet on ladder rungs. Keep body as close to ladder as possible.
1419. The use of any part of a car truck as a step when getting on or off moving cars is prohibited.
1423. Swinging from alongside track to footboard of high tender equipped with end sill by using vertical grab iron on corner is prohibited. Use hand rail on end of sill.
1427. Employee passengers are prohibited from getting on or off moving trains.
1519. Before riding inside empty drop-end gondola cars, with end gates up, or climbing over gate, assure yourself it is securely latched.
1526. Always face the door when opening or closing passenger car doors.
1614. Stepping or jumping across ash or other pits is prohibited.
1618. Carrying open umbrella while on or about tracks, is prohibited.

The promotion of "safety mindedness," so often advocated as a desideratum by safety superintendents, cannot be better accomplished than by making it necessary for the individual employee to think on the rules with sufficient persistence and repetition to fix the points in the memory. This has been amply demonstrated by experience on the Pennsylvania. A recent meeting of trainmasters and other subordinate officers—35 men in all—discussed these 200 odd rules for six hours. Six hours on a large number of brief printed rules—rules already somewhat familiar—is much less tedious than the same time spent on the ordinary agenda. And the need of constantly referring to the book tends powerfully to promote uniformity of practice in enforcing the rules, which of course is a main purpose of such meetings.

The trainmasters of the Pennsylvania are perhaps to be envied, there are so many of them. With a smaller number, enthusiasm and good wit would be less easily generated, while to enlarge a small meeting by taking in officers or other persons less intimately connected with train operation would tend too much to diffusion of effort. The trainmaster who has 34 of his fellows helping him, through a long session, to sharpen his wits in one of the most important of his duties, has indeed a unique advantage. Mr. Carrow, the superintendent of safety, has observed that the prohibitions of some bad practices have now become so well understood, by everybody concerned, that a violator is likely to be called to account by some bystander.

Prosperity by Consolidation?*

Modern facilities increase the economic advantage of heavy-density lines as compared with those of light traffic— Rate regulation essential

By J. W. Barriger, III

THE fundamental necessity for regulating all forms of inland transportation arises from the joint cost nature of the enterprise. Transportation is what the economist terms a "joint cost" operation because various services are produced simultaneously at indistinguishable costs. The major expenses of transportation are incurred regardless of whether a maximum or minimum quantity of the service is utilized and when any minimum unit of service is performed an additional potential, but unused, service is also produced. If the latter can be sold for anything at all, be it only one cent, it represents a gain of that much. Such a fundamental condition, if uncontrolled through proper regulation, quickly leads to cut-throat competition which is equally destructive to the transportation industry itself and demoralizing to all users to whom reasonable stability and uniformity of tariffs is essential to orderly conduct of their business.

Most Industries Not Joint Cost Operations

Most manufacturing operations, even of mass production type (except coke making, meat packing, petroleum refining, and a few others which to a certain extent are joint cost operations) are on an entirely different competitive basis. The principal production costs are the labor and materials definitely attributable to each unit and such expenses are not incurred if that unit is not built. Moreover, costs specifically assignable to each unit of output vary only with large changes in volume. This condition makes it economically suicidal for manufacturing industries to compete on the basis of acquiring new business at any price obtainable, however low, and so makes cut-throat competition an extraordinary, rather than a normal, condition of unregulated endeavor to enlarge sales.

This fundamental "joint cost" characteristic of inland transportation makes unregulated competition inevitably destructive. The ruinous effects are quite as serious to general business as to the carriers themselves. Transportation is a principal cost factor in all industrial activities and under a state of unregulated rates, the tariff discrimination obtained by the limited number of shippers situated in a position to benefit from the cut-throat competition becomes economically demoralizing to all industry.

It was to bring order out of such a chaotic situation that Congress first created the Interstate Commerce Commission and gradually strengthened its powers. A uniform, published, non-discriminatory rate, approved by the regulatory commission as fair to all parties, is a necessary basis for any system of inland transportation which is to foster the general economic welfare of the public, its patrons and itself.

Rates must be made from a broad, national viewpoint. All carriers must be uniformly subject to the tariffs prescribed, because rates are a matter of vital importance to the economic welfare of communities, industries and individuals. There is ceaseless controversy over rates by those striving to improve their relative situation, and while the existing tariffs are not regarded as ideal by either the Interstate Commerce Commission, the users of the railways or the railroads themselves, there can be no doubt that the basic necessity of the uniform, non-discriminatory, published rate must be protected against all attacks of unregulated competition.

A Railroad Analogy for Truck Competition

With what has been said of the "joint cost" nature of railroad service, what would be the result to the New York Central if it should be required to obtain Interstate Commerce Commission approval of its rates, publish and adhere to them, while its rival, the Pennsylvania, did not have to publish rates or obtain Interstate Commerce Commission approval of charges and instead could name any rate which it desired and vary all tariffs at will, bargaining with each shipper for whatever rate would obtain competitive tonnage? The unfair handicap to the New York Central and the demoralization of the entire rate structure which would follow are too obvious to require comment. Unregulated motor transport is an exact parallel.

To develop a great continental nation such as the United States, it has been essential to overcome the obstacles of distance to the fullest possible extent. That is, of course, the very purpose for which the railway network has been developed. However, merely providing transportation facilities is only the beginning; a rate structure had to be developed to foster the basic purpose. Rates had to be made to permit the nearby and the distant producer to compete in the same market. To do this, the "postage stamp" principle of rate making has been followed, as far as practicable, whereby rates, as nearly uniform as possible, are made on commodities to all markets from every competitive source which has economical justification to reach it. Had this not been done, a great continent could not have been developed and industrial and agricultural activity would be concentrated into very limited areas instead of being widely diffused.

Such a principle of rate making has been of paramount importance to our national economic growth. It has resulted in extremely low long-haul and average rates per ton-mile, but has necessarily resulted in high short-haul rates per ton-mile. Short-haul rates are high in order to conform to an essential economic principle without which distant centers of production cannot be developed, and not because the railroads cannot carry short haul traffic at lower rates per ton-mile.

The economic progress of the United States proves

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* This article is an abstract of an address delivered at the recent conference of economic societies in Philadelphia. The author, now chief examiner of the railroad division of the Reconstruction Finance Corporation, in the early spring of last year headed the group of railroad and financial men who prepared the so-called "Prince" plan for railroad consolidation on a regional basis, and this article is, in essence, a statement of opinion in support of that and similar proposals. The *Railway Age* is by no means committed to these plans, nor to some of the views cited in support of them. The argument is, however, at least arresting—and is important if for no other reason than the attention it has commanded in official circles. We present it for the purpose of stimulating thought and discussion of a major problem of railroad policy.—EDITOR.

that this rate making principle is eminently sound, practical and effective, but high short-haul rates enable the motor trucks, which are inherently high cost producers of transportation (except in limited fields), to capture all of the short-haul and much of the intermediate distance freight, not because of fundamental economy, but because of its privilege to name any rate that will get the business, while the railroad must adhere to the published tariffs—a case exactly parallel to the suggested instance of the New York Central being bound by present rate regulation with the Pennsylvania free to do as it may choose. Trucks are joint cost producers, just as railways, hence this analogy is correct.

It *costs* trucks around 5 cents per ton mile to produce freight transportation service. Railroads *sell* their service at an average of 1 cent per ton mile. However, due largely to the rate making principles previously stated, short and intermediate haul rail rates average above 5 cents per ton-mile, and the steam lines, being held rigidly to their published rates, are unable to meet the truck competition which can charge whatever price will obtain the business. The railroads cannot materially reduce short-haul rates because this would remake the economic map of the United States and wipe out many present centers of production.

Should Each Production Area Serve Only Nearby Markets?

Potatoes come to the Atlantic Seaboard cities from Upper New York State, New Jersey, Maryland, Virginia, Delaware, North Carolina, Maine, Michigan, Wisconsin, Minnesota, the Dakotas and Idaho. Potatoes are a very bulky article and have a low value per unit of weight, hence, freight charges are a major factor in determining markets. If potatoes from the nearest areas of production have any undue advantage in the matter of freight rates, no other states can market potatoes in the East, and the western potato growing areas serving eastern markets will be economically paralyzed. Rail rates have been established to give access to New York for potatoes from many states, and it is inevitable that the short-haul rates are fairly high on a per ton-mile basis. Trucks take advantage of this condition to undercut the rate a little and take the business. The railroads could name potato rates remunerative to themselves so far below the trucking costs that the lost business would be regained but these reduced rates, which could not be made effective for long haul traffic, would embargo distant producing centers and thereby *un*develop the country.

It should be noted in passing that the potato growing states of Michigan, Idaho, the Dakotas, and Minnesota are represented in the Congress by highly vocal Senators who would have much to say regarding change in rates, barring their constituents from markets to which the latters' products now move freely.

The trucking interests know that the railroads will not and would not be allowed to readjust the relative rates to the disadvantage of long-haul traffic, so they endeavor, by one excuse or another, to insure the continuance of present unfair advantage by attempting to convince the public that trucks could not or should not, be subjected to regulation. This condition in a "joint cost" operation gives an overwhelming and economically destructive advantage against a competitor respecting a published rate and permits the trucks to secure much traffic where they are the high cost producer of the service and at the same time requires increased public expenditures (over and above the motor trucks' contribution) to build and maintain highways.

As director of research of the National Transportation Committee, Dr. H. G. Moulton prepared a memorable volume, "The American Transportation Problem," which is an encyclopedia of complete and authoritative information on nearly every controversial phase of transportation. Based upon the exhaustive record and investigation of Dr. Moulton the National Transportation Committee gave expression to conclusion No. 1 as follows:

> Parallel lines and systems are wasteful and unnecessary. Regional consolidations should be hastened and, where necessary, enforced, looking eventually to a single national system with regional divisions and the elimination of all excess and obsolete lines and equipment. Neither holding companies nor any other device should be permitted to hinder consolidation or evade the letter or the spirit of regulatory law.

Dr. Moulton has, I believe, set forth the *sine qua non* of an enduring solution of the railway problem. The railroad problem is entirely a matter of improving service and lowering rates, in relation to the general price level, while fulfilling the responsibility to pay employees an adequate wage level and capital a fair return. The solution is obtainable through efficient railway operation, which is by no means an easy task even in times of satisfactory business conditions. In the present period of extreme traffic curtailment it is tremendously difficult.

The most economical conduct of transportation is a problem in applied physics. The physical characteristics of a railroad, that is, distance, grades and curves, establish the amount of work which must be performed to move each ton of train weight between initial and final terminals. The economy with which this pre-established amount of work can be performed is dependent upon the character of the transportation facilities provided. There are marked differences in these two basic determinants of cost and service as between the several divisions of any system and between individual railroads.

It has been proven that great economy and improved service are obtainable through concentrating the tonnage on lines selected because of superiority of physical characteristics and general standard of development. The changing purposes which railroads serve and requirements exacted of them necessitate constantly improving plant and facilities and technique of operation.

Technical development and service improvements on our railways are widely heralded but such advances always require concurrent evolution of the corporate structure of the properties in order not to retard operating progress. It is quite apparent that had railroads not amalgamated into great systems but had remained as myriad separate and independently operated lines, their development would have been stunted and much of a century's marvelous history of railroad development would have been lost. It is self-evident that railroad amalgamation has been of great national service.

Great Era of Railroad Development Foreseen

We are on the threshold of another great era of rail transportation development. Once again the corporate structures and scope of operations will have to be enlarged to permit it, and for the same basic reasons that necessitated such transitions in the past: i. e., the physical development of the properties and the change in operating technique to be made possible and effective must have such broad territorial scope as to entail intercorporate effect. This necessitates consolidation in order to insure unified control and equal justice to the security holders of constituent lines, which is a condition precedent to successful expansion.

While railways have long been conducted on a basis that might be termed a "large scale operation," nevertheless "mass production" of transportation, which is the basis of present and prospective economies, is a product of comparatively recent technical development and im-

(*Continued on page 44*)

Spring Switch on the St. L.- S. F.

Special rule insures check on trains at end of double track— Interlocking and block station eliminated

A SPRING switch has been installed by the St. Louis-San Francisco at St. John, Mo., to replace an interlocking and block station at an end of double track. Except for a few short sections, the main line of the Frisco is single track from Pacific, Mo., near St. Louis, to Springfield, Mo., 204 miles. Some years ago a section of new single track was built on a new alinement from St. John to Swedeborg, 3.7 miles. The new line affords a lower grade, and is, therefore, used by all eastbound trains, while the old line is used for westbound trains.

At the east end of the double track at Swedeborg, the switch is handled by a small mechanical interlocking, an agent-operator or an operator being on duty each trick. Likewise, at St. John a mechanical interlocking was in service and an operator was on duty each trick. As there is no town at St. John, investigation was made to devise some means of controlling automatically the switch and signals for directing trains at that point. One of the important problems encountered was to provide some means of "policing" the end of double track without requiring trains to stop to register or check the register. In this instance the condition is slightly different from an ordinary end of double track because the new line diverges from the old line a distance of a mile or more at some points, the general layout being as shown in the sketch. A centralized traffic control system with automatic "OS" and complete track-occupancy indication would have solved the problem but it was not considered to be justified under present traffic conditions, and consideration was limited to the use of a spring switch layout.

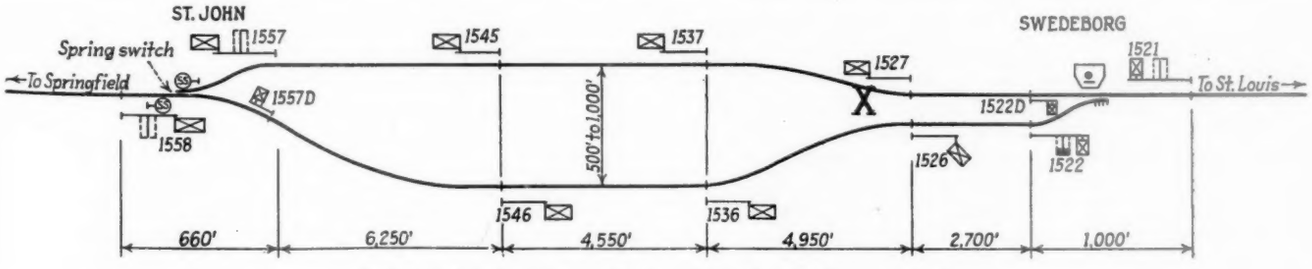
After considerable study, a plan was devised whereby a westbound train, which is restricted by right, class or direction, at St. John, against opposing trains, is required to identify such trains or be given a register check at Swedeborg, before proceeding, except that if it does not get a register check at Swedeborg, and there are eastbound trains which must be identified, it is permitted to enter the double track and stop at the point where the two lines diverge, near the point marked *X* on the diagram, and wait there until the eastbound trains pass. In comparatively few instances has it been necessary for a westbound train to make such a wait and, therefore, in general it may be said that the arrangement, in so far as train operation is concerned, has been a success.

The spring switch mechanism, a Pettibone-Mulliken device, including the spring and the buffer in one unit, is mounted as a part of the connecting rod. A new feature, developed on this installation, is the use of a support for the spring switch unit, which takes part of the weight off the switch rod. Two pipe rollers, supported by strap rods extending to the tie, are fitted under the spring switch unit.

The rail through this territory is 110-lb. R. E. section, tie plates being used on all ties. The ballast is chat and gravel. The turnout is a No. 15 and the switch points are 24 ft. long. The points are reinforced on the gage side by a 1¼-in. reinforcing bar and on the other side by a ¾-in. bar. A 1-in. by 7-in. gage plate is used on each of the first two ties and on the tie ahead of the points, a special feature being the use of rail braces on the gage side of the rail on the tie ahead of the point, to prevent the "rolling" of the stock rail.

Train movements over this spring switch layout are directed by automatic signals which check the position of the switch in the normal position and also check as to track occupancy. These signals also serve as automatic signals, being a part of the automatic block system. The two double-arm high signals direct train movements for the normal current of traffic. The switch is set normally for eastbound trains to be diverted to the new low-grade line. Therefore, such trains are governed by the top arm of signal No. 155-8 which is normally in the clear position. The lower arm is fixed to indicate red, being used as a marker to designate the signal as an absolute "stop and stay" signal, the same as a home signal at an interlocking. In case an eastbound train has orders to run against the current of traffic from St. John to Swedeborg, the train is stopped short of signal No. 155-8 and a trainman goes to the switch and throws it by hand to the reverse position, and after the rear of the train passes, he returns the switch to normal.

Westbound trains moving with the current of traffic on the double track are governed by the position of the top arm of signal No. 155-7, which normally displays a "clear" indication. Ordinarily, westbound trains are not moved against the normal direction of traffic on the double track, but when a train does make such a movement, it will find dwarf signal No. 155-7-D at "stop" and the train is stopped short of this signal. The trainman then proceeds to a case attached to signal 155-7 and operates a clockwork time release. When he does this, signal No. 155-7 assumes the stop position, and after the two-minute period, the release is run down, after which the dwarf signal changes to the "proceed" indication,



Sketch of Track Layout to Illustrate Operating Problems Involved

providing the switch is in the proper position and the block is unoccupied.

In case an engineman fails to get a proceed indication for any of the three routes, an inspection is made of the switch to be sure that it is not obstructed and that the points are properly closed. If no defective conditions are noted and the signal still fails to clear, the train must flag the block. All train movements over the spring switch layout are limited to speeds not exceeding 20 m.p.h.

The signals are of the upper-quadrant semaphore type. Each signal is operated by a set of 16 cells of 500-a.h. Edison primary battery, three cells of the same type of battery being used for each track circuit. This installation was designed and installed by the signal department forces of the Frisco, the signal equipment being manufactured by the Union Switch & Signal Company, and the insulated wire and cable by the Kerite Insulated Wire & Cable Company.

Prosperity by Consolidation?

(*Continued from page 42*)

proved administration. The improvement in operating technique supposed to result from the competitive effort of many separate lines striving with each other for preference and greater efficiency, is nowadays more than outweighed by the resources of the larger systems for developing their transportation machine. The size of the smaller companies, in the very nature of things, limits their possibilities. Moreover, the smaller companies are not financially able to carry on research and experimentation to the degree possible for the principal systems and are less able to scrap and write off large items of property which become obsolete.

Prior to the world war, the character of the then standard equipment and facilities permitted a line of moderate density to operate at approximately the same unit cost with ones of heavier traffic. However, the recent development of super-power locomotives, car retarders, central traffic control, improved shop machinery, and a host of related devices, results in increasingly wide divergence between the unit cost of conducting transportation on a large and on a small scale.

The solution of the railroad problem demands a recasting of routing of traffic in such manner as to concentrate movement on a minimum of main line mileage selected because of its superior facilities and physical characteristics and subsequently the development of such lines to the maximum peak of perfection within the limits of proper balance of new capital investment to traffic density. This requires the complete integration of the operations now conducted necessarily without co-ordination because carried on by independent companies. The interests of security holders can best be protected through a corporate merger in order that the future return to the investor will be secured by the financial results of the system as a whole and not by the actual usage made of any individual constituent property.

If our present depression were a result of over-production, I should heartily agree that anything that tended to diminish employment was detrimental, but over-production has never existed and can never exist until goods and services are without value or utility to anyone, even if given away. The fact that goods exists which cannot be sold does not mean that there is over-production but that the distribution mechanism is faulty. To cut down on production either in total or per individual will merely further disorganize the distributive mechanism and make the problem worse rather than help solve it.

Transportation is a distribution cost. The one way we could banish the depression quickest for everyone concerned and immediately give all people jobs is to reduce distribution costs to zero. Production costs can always be absorbed in willing markets. The break-down comes in distribution costs which restrict markets. Ask the farmer about this! Sometimes it helps to get a better prospective if we carry our argument to the *reductio ad absurdam*. Let us do it in the case of railway transportation. It takes approximately 1,000,000 men to run the American railways with present traffic. Do we want to take 2,000,000 or 10,000,000 or 100,000,000 men to carry the traffic? If so, would the ideal not be reached by tearing up all the railway tracks and moving the freight by wheelbarrows? On the other hand, wouldn't it be advantageous to have the American railways run automatically without any labor and without any expense, if that latter were possible? It would instantly create markets for all the goods that this country could possibly produce, and the million or two million men employed on American railways could be engaged in industries at wages representing a standard of living far higher than American railways can pay.

When we run American railways at lower and lower cost we are not putting men out of work, but we are helping to establish an economic balance in distribution which is vital to the welfare of the country. If we desired to double the number of men that work on American railways and hence double their cost of operation, I think you would completely prostrate the business and finance of this country. On the other hand, I believe if we could cut the cost of running American railways 40 per cent, there is nothing that is within the power of the nation to do that would have such an instantaneous vitalizing effect on American business.

C. & O. Has Systematic Public Relations Program

(*Continued from page 38*)

the 1933 system conference are listed below, indicating the scope of the subject matter covered:

PUBLIC RELATIONS AND THE NECESSITY FOR PUTTING OVER A REAL PUBLIC RELATIONS CAMPAIGN ON THE RAILROADS
F. J. LISMAN, Chairman, Lisman Corporation, New York

THE HUMAN ELEMENT IN RAILROADING
COLONEL W. S. BATTLE, JR., Vice-President, Norfolk & Western

HOW THE MEMBERS OF THE PUBLIC RELATIONS DEPARTMENT CAN CO-OPERATE IN OBTAINING TRAFFIC
W. C. HULL, Assistant Vice-President—Traffic

THE POSITION OF THE RAILWAY AS A TAXPAYER IN STATE AND LOCAL GOVERNMENTS
HARRISON W. SMITH, Counsel, Columbus, Ohio

SELLING PUBLIC RELATIONS TO WOMEN'S CLUBS
MISS LAURA E. ARMITAGE, Special Assistant, Public Relations Department

THE ENGINEER IN PUBLIC RELATIONS
L. B. ALLEN, Assistant to Vice-President—Operation

AIR CONDITIONING ON THE CHESAPEAKE & OHIO
L. C. PROBERT, Assistant to the President

WHY MY UNCLE WENT BROKE
L. G. BENTLEY, General Safety Agent

DUTIES OF A PUBLIC RELATIONS COMMITTEE CHAIRMAN
CHAS. E. FORD, Counsel, Newport News, Va.

THE IMPORTANCE OF SHAKING HANDS WITH OLD HUMAN NATURE IN PUBLIC RELATIONS, AND OF KEEPING ON SHAKING
MRS. GUY. O. BEALE, Cleveland, Ohio

THE LAW DEPARTMENT AND PUBLIC RELATIONS
ODIS W. BERTELSMAN, Counsel, Newport, Ky.

In addition there were addresses by M. Carter Hall, general attorney, and J. M. Fitzgerald, vice-chairman of the Eastern Railroads' Committee on Public Relations.

Communications . . .

Remove The Barriers

GRANTWOOD, N. J.

TO THE EDITOR:

Referring to the article "The Passenger Salesman Replies" in the *Railway Age* of December 30, 1933, page 907:

It appears to me that the ticket salesman is handicapped through the position in which he has to face the customer. Usually he has to do so through a set of cage-bars. He is enclosed in a mysterious pigeonhole and when he disappears in the course of a transaction from the window, the customer finds himself left alone and neglected. He naturally starts wondering: What is he doing now? Why must I wait?

Grilles, small windows at which all of a sudden a "Closed" sign appears and the impossibility to see what is going on behind these windows and walls, draw a distinct, I might even say, "unfriendly" line between customer and salesman.

The "high hat" was taken out of banking by elimination of the cages. Every new transport organization has done away with them. Why do not the railroads get out in the open and receive the prospect in friendly form not only with words to which a salesman may be trained, but to which surroundings can not be trained unless they are changed from their present state?

O. KUHLER.

"Person to Person" Visits and "Arrival Platforms" Suggested

PHILADELPHIA, PA.

TO THE EDITOR:

In your December 2 issue there is a Washington letter regarding Mr. Eastman's "Passenger Ballot." I am not a professional railroad man, simply a passenger, shipper, investor and interested reader. I have not been honored with one of these ballots with a request for my opinion. There are a number of technical questions which I would not try to answer. However, I take the opportunity to express certain thoughts through you.

I feel very strongly that government utilities should account for their use of capital investment in waterways, highways, etc., in the same way that private corporations must do. Accounts of receipts and expenses of operation are not sufficiently enlightening.

Railroads are over-regulated. They should be largely relieved. All transportation agencies, by water, motor-coach, truck, air or otherwise, passenger or freight, should be regulated alike.

Noting some of the particular questions in the ballot: Pullman surcharges have met much opposition. Recent reductions of rates have left a similar higher charge as a basis for Pullman service. Such charge is proper and is for service rendered. I have always thought there would have been less opposition if "surcharge" had been known as "service charge."

Reduced fares have usually been the one advertising talking point for railway passenger business—special fares for excursions to particular places on certain days or for special groups. The confusion has often been too much for both agents and customers. This should be simplified.

Railway advertising might well be directed towards stimulating the desire, pleasure, convenience, comfort and opportunity for travel; not only to more or less distant "resort" places, but to any place at any season. "Person to person" *visits* with family or friends can be advertised as well as telephone calls.

Every passenger journey is from door-to-door. This is where the automobile has diverted so much of the passenger traffic. The highway motor-coach usually offers more convenient pick-up and delivery points than the railway stations. Railway stations often make transfer most inconvenient from train to local conveyance. Heavier motive power and longer trains in stub-end stations often make a very long walk from train to street car or cab. This has been greatly aggravated in recent years. The desire for spaciousness has increased walking distances abnormally. The English and Continental "arrival platform" is almost unknown in our larger stations. Yet it is by all odds the most convenient way for handling a train-load of passengers. Of this fact the two Atlantic City stations about to be abandoned bear strong evidence.

Greatly improved convenience of transfer between train and local transport seems to me to be one of the most important factors in regaining passenger traffic. Make the station transfer easy, under cover, the walk short with no stairways.

Higher speed on the main line is desirable only to offset the inconvenience and delays of transfers and local transport at both ends of the line haul. Possibly all of this has been said before, but good things gain in emphasis by repetition.

HENRY PAUL BUSCH.

All-Inclusive Holding Company Would Bring Railway Co-operation

NEW YORK.

TO THE EDITOR:

There are occasional spurts in the reports of car loadings but the railroads are a long way from being out of the woods. The industry is sick, so we engage a wet nurse who puts paregoric on the nipple to soothe it into such condition that only the foster parent, government ownership, can save it. But the railroad executives themselves are largely to blame. They never have co-operated and studiously refuse to do so. They should be compelled to co-operate, and the method is in their own hands. The writer offers a suggestion, as outlined below.

A general consolidation has its advocates. Because of lack of co-operation between the respective managements, due to the disparate interests naturally inherent in a competitive industry, there has grown up a movement looking to a consolidation of the railroads into a limited number of systems, in the hope that much of the duplication of service and other wasteful competitive practices could be eliminated. Because of the plight of the railroads in this depression and the need for still further economies, the proposal to consolidate has received marked additional attention. A general consolidation is impracticable. The objections, practical and political, are so serious that little progress has been made in that direction, although the Transportation Act of 1920, laid great emphasis on this step.

Voluntary consolidation means that both officers and employees find it necessary to consolidate themselves out of jobs, which they hardly can be expected to do with any enthusiasm; compulsory consolidation, in addition to displacement of personnel, means that resort must be had to condemnation proceedings in order to acquire the minority interests. Up to this time the right of eminent domain has not been exercised against personal property, so that greatly protracted and costly litigation would follow any attempt to use that means, with the result that even though success eventually might be achieved, it would be long delayed.

General consolidation, also, would mean abandonment of railroad activities at many centers, which depend for their sole livelihood on these activities, and would mean, therefore, the breaking up of homes and life-long ties for many, not only railroad employees, but others whose businesses would be adversely affected. Many railroad executives have expressed the opinion that the advantages of a general consolidation easily might be more than offset by the disadvantages.

The lack of progress in the direction of general consolidation has led some who have been opposed to government ownership to advocate that step so as to gain the advantage of unified operation. But the difficulties in the way of either general consolidation or government ownership probably are insuperable. Is there an alternative to which we could resort so as to gain the benefits of both consolidation and government ownership without their drawbacks? The railroads must be kept in operation. They should not be left to drift along in their present state, borrowing from the government because their traffic and earnings are so low that the market for their securities is closed for lack of credit, a considerable number of them already having succumbed to bankruptcy.

Some of the traffic that the railroads had is lost permanently

to the motor vehicle, for the hard surface highway and motor are here to stay. Some of the traffic so taken from the railroads can be handled more efficiently by motor. The railroads cannot recover it. But a reorganization of the railroads by setting up what is known as a community of interest could be put into effect that would enable the railroads to co-operate more effectively. The community of interest is used to the distinct advantage of a number of industries. In a limited way it has been done with respect to some railroads and could be done again on a much larger scale.

With the co-operation of the federal government and the railroad executives, let a central corporation be created, with either a federal or state charter, which will issue and exchange its stock for outstanding stock of the railroad companies. Under this plan the railroads still would be owned by a private corporation, the stock of which, with the necessary voting power, still would be held by the owners of stock thus exchanged therefor, so that ownership of the railroads still would remain in the hands of the people.

The board of trustees of the proposed central corporation would be chosen in the first instance at the suggestion of the Administration, vacancies to be filled as may seem most advisable. They should be chosen for life or during good behavior and be men *sans peur et sans reproche*. Such men are available.

The present railroad organizations would continue in existence and operate the properties under this plan, but the board of trustees of the central corporation would have the power and would require the managements to eliminate unnecessary duplication of service and other wasteful competition that there is now no effective authority to require. There is no wish to minimize the authority of the federal co-ordinator, but his authority is limited as to time and scope under the statute, and the railroad managements do not feel the same toward government regulation as they would toward the power of a central corporation of their own creation that actually could enforce its mandates in a permanent manner.

To put into effect a project of such wide scope, of course, would necessitate disturbing existing relations as little as possible consistent with bringing about a substantial and effective reorganization of the railroads, but continuation of operation under the present managements should win their support; continuation of a financial set-up similar to that now in existence probably would win the support of the present security holders; and continuation of future financing along former lines should win the support of the present financial backers of the railroads.

Success of the plan would depend upon the exchange of sufficient stock to enable the central corporation to acquire working control. Stockholders must be convinced, therefore, that the plan is in their interest. It stands to reason that a vigorous central corporation with power to enforce its recommendations would be highly beneficial to the railroad industry just as it has in other industries. Not only could it bring about further operating economies, but it would be in a position to plan and carry out construction and other projects in the interest of the railroads that cannot now be accomplished because of lack of co-operation. Unless something be done that will prove effective in bettering conditions in this industry, fundamentally and permanently, a highly prosperous railroad industry is likely to be a long time coming back.

It is easy to find fault. It is not so easy to devise a constructive project. A former member of the Interstate Commerce Commission with whom the writer discussed this plan recently said that he had been convinced for some years that some central, private authority must be set up properly to handle the railroad situation.

As a life-long railroad man, the author of this plan is convinced that a thorough-going, effective and complete reorganization of the railroad industry through a central control of their own, that would have the power to effect substantial operating economies without unnecessarily displacing personnel, reduce fixed charges, plan and carry out constructive work that would create additional traffic and earnings, and put the railroads back into the market for labor, capital and material and supplies as privately operated, prosperous, going concerns is not only one of our greatest needs but is one of the most practicable to bring about because of already existing organizations. It would do more than any other step we could take to restore confidence and encourage the country to face the future.

JOHN E. WHITE.

Odds and Ends . . .

A Whale of a Shipment

The Missouri-Kansas-Texas recently did a "whale of a job". An embalmed monster from the deep, mounted on a flat car for exhibition purposes, traveled between several Texas points over the lines of the Katy.

Engineman of Royal Scot Honored

William Gilbertson who will be remembered as the engineman in charge of the Royal Scot during its visit to the Century of Progress in Chicago last summer, was honored by King George on New Year's Day. He was awarded the medal of the Order of the British Empire for having piloted his train without accident over more than 11,000 miles of railway in the United States and Canada.

A New Lullaby

A delicate tribute to railroad sleeping cars is paid by Professor Salomon, a German inventor, who has just produced a new sleep-inducing machine, according to the Delaware & Hudson Railroad Bulletin. The machine consists of a plain round wooden box, mounted on three little legs, and it contains a clockwork mechanism that runs for 40 min., emitting a hollow droning sound punctuated by a dull clicking. Prospective purchasers of this antidote for insomnia are told to imagine themselves in a sleeping car, being lulled to sleep by the "clicks from the rails".

This reminds us of one of the stories of Irvin S. Cobb. After returning from a long lecture tour, involving nightly "sleeper jumps", the noted humorist found that he could not sleep in his own home. He finally solved the problem, though. Upon retiring each night, he put a cinder in his eye and had someone shake his bed violently every few minutes. Then he slept perfectly.

Detroit Zoological Railroad

A few months ago, we described the Detroit Zoological Railroad in the zoological park at Royal Oak, Mich., and the conversion of its motive power from gas to gas-electric drive. Now, thanks to a subscriber with a penchant for photography, we are privileged to present a photograph of the main line of this road. The track has a 30-in. gage and is rock-ballasted for its entire length. It is 1½ miles long and is the only means of transportation from the main entrance of the park to the exhibits which are about a mile away.

Main Line of the Detroit Zoological Railroad at Royal Oak, Mich.

NEWS

President Urges Approval of St. Lawrence Treaty

Ratification of the waterway pact is requested in message to Senate on January 10

President Roosevelt on January 10 sent a message to the Senate requesting consideration of ratification of the so-called St. Lawrence treaty with Canada. "I want to make it very clear that this great international highway for shipping is without any question going to be completed in the near future and that this completion should be carried out by both Nations instead of by one," he said in part.

"I am sending you herewith a summary of data prepared at my request by governmental agencies. This summary, in its relation to the economic aspects of the seaway, shows from the broad national point of view, first, that commerce and transportation will be greatly benefited and, secondly, local fears of economic harm to special localities or to special interests are grossly exaggerated. It is, I believe, a historic fact that every great improvement directed to better commercial communications, whether in the case of railroads into new territory, or the deepening of great rivers, or the building of canals, or even the cutting of the Isthmus of Panama, have all been subjected to opposition on the part of local interests which conjure up imaginary fears and fail to realize that improved transportation results in increased commerce benefiting directly or indirectly all sections.

"For example, I am convinced that the building of the St. Lawrence Seaway will not injure the railroads or throw their employees out of work; that it will not in any way interfere with the proper use of the Mississippi river or the Missouri river for navigation. Let us be wholly frank in saying that it is better economics to send grain or other raw materials from our Northwest to Europe via the Great Lakes and St. Lawrence than it is to send them around three sides of a square—via Texas ports or the Mississippi, thence, through the Gulf of Mexico and thence, from the southern end of the North Atlantic to its northern end. In this illustration, it is well to remember that a straight line is the shortest distance between two points.

"On the affirmative side, I subscribe to the definite belief that the completion of the seaway will greatly serve the economic and transportation needs of a vast area of the United States and should, therefore, be considered solely from the national point of view."

The data referred to included in a report submitted by Frank R. McNinch, chairman of the Interdepartmental Board on the Great Lakes-St. Lawrence Project, which contains an estimate that the past trend of increase in freight traffic, prior to the depression, would indicate a demand for about 650,000,000,000 ton-miles of freight traffic in 1950, an increase of 200,000,000,000 as compared with the 1929 peak, and another said to warrant the conviction that by 1950 the increase in traffic offered to the country's transportation agencies will be at least 30 times the probable traffic via the seaway. "If the comparison be limited to the railroads paralleling the proposed seaway", the report said, "it appears that increased demands for traffic will exceed the potential traffic of the seaway at least 10 times over."

A. S. C. E. Annual Meeting

The eighty-first annual meeting of the American Society of Civil Engineers, will be held at New York, at the headquarters of the Society, the Engineering Societies Building, 29 West Thirty-ninth street, January 17 to 20.

Milwaukee Blacksmith Shop Burns

Fire caused by a short-circuited wire destroyed the Chicago, Milwaukee, St. Paul & Pacific blacksmith shop at Milwaukee, Wis., on January 8. The adjacent machine shop was not damaged. The one-story brick blacksmith shop, 350 ft. by 100 ft., was modernized in 1932.

L. & N. Broadcasts Safety Talks

At Nashville, Tenn., on the evening of Monday, January 22, there is to be a meeting of railroad employees for a safety rally, to be convened at 7:30 p. m., and the main features of the doings are to be broadcast by radio from station WSM. This meeting will be under the auspices of the Nashville Terminals, representing also the Louisville & Nashville, and the Nashville, Chattanooga & St. Louis, the parent companies of the Terminal organization. Other meetings are to be held at all terminal points on both roads, as well as at other large stations. The meeting at Nashville is to be in the auditorium of the War Memorial, and the employees are to bring the members of their families with them. The meeting will be addressed by W. R. Cole, president of the Louisville & Nashville, and J. B. Hill, president of the Nashville, Chattanooga & St. Louis. These two speakers are scheduled to be on the air between 8:30 and 9 o'clock.

Cooperating with the railroad organizations will be the National Life and Accident Insurance Company, owner of Station WSM.

Motor Truck Lines Attack Eastern Storedoor Service

Ohio highway carriers claim it is illegal in seeking injunction from U. S. Court

The storedoor pick-up and delivery service for l.c.l. freight now being provided by the Pennsylvania, the Erie, the Grand Trunk Western and the New York, Chicago & St. Louis is being attacked by Ohio truck operating interests on the grounds that it is illegal. An application for an injunction to restrain the four roads from provision of the service was filed in the United States district court at Cleveland, Ohio, on January 5, by the Ohio Association of Commercial Haulers, Columbus, Ohio, and the Scott Transportation Company and the Eagle Paint & Varnish Company, Cleveland, Ohio.

The general allegations in the petition to the court are that the service violates the provisions of the National Recovery Act and, if continued, would prevent reemployment of 500,000 employees of truck-operating companies; that the railroads are attempting to put the trucking industry out of business through "unfair competition"; that freight handled under the pick-up and delivery tariffs is handled at a loss by the railroads, and that, since the railroads are indebted to the Reconstruction Finance Corporation, such losses are sustained partly at the expense of taxpayers; that the railroads have no legal authority to engage in truck operation; and that the action of the Interstate Commerce Commission in authorizing the service is a "direct contradiction of and a partial and unlawful abridgment" of the effect of the National Recovery Act.

M. S. Ketchum Retires as Dean at University of Illinois

Professor M. S. Ketchum has been relieved, at his own request, of the duties of dean of the College of Engineering and director of the engineering experiment station at the University of Illinois, and has been appointed research professor of civil engineering at that institution. Through this change, Professor Ketchum is relieved of the burden of administrative detail and given opportunity to carry on research investigation and give graduate instruction. Professor Ketchum has been dean of engineering at the University of Illinois for 11 years, prior to which time he was for 14 years professor and dean of engineering at the University of Colorado, and for 3 years professor of engineering and director of that department at the University of Pennsylvania.

I. C. C. Inspectors Check Condition of Equipment

Results of survey conducted at request of Co-ordinator Eastman are made public

The results of a detailed inspection of freight cars and locomotives, recently completed by the Bureau of Safety and Locomotive Inspection of the Interstate Commerce Commission, at the request of the Federal Co-ordinator of Transportation, were made public on January 4, as briefly reported last week.

Late in the summer inquiries were directed to the Co-ordinator from various sources respecting the adequacy of freight equipment to protect possible increase in traffic during the fall months. It was generally recognized that considerable maintenance had been deferred and some doubt was expressed as to the ability of the railroads to meet the prospective demands. Freight car and locomotive statistics, maintained by the American Railway Association, and released currently through the Car Service Division, reflected an apparently satisfactory condition, but in view of the doubts expressed as to the entire accuracy of these reports, a special check was arranged for, Mr. Eastman explained.

The check covered a large portion of the cars reported as stored in serviceable condition, and most of the locomotives. It consisted of actual examination of the equipment by inspectors of the Interstate Commerce Commission.

"The facts developed by this examination lead to the conclusion that neither the fears of a freight car shortage nor the optimism of those who relied upon railroad reports of surplus equipment were fully justified," according to Mr. Eastman's statement. "Had the anticipated increase in fall business been realized, it is probable that the supply of serviceable cars would have been fully absorbed, although the surplus was apparently sufficient, at least numerically, to have averted a serious shortage."

The railroads whose cars were examined reported as of October 1, 118,854 stored cars fit for the transportation of all commodities for which designed. The inspection developed that 55.5 per cent of these cars were fit for the service for which they were designed, and 4.4 per cent were found unfit for any service until given repairs estimated to cost $350 per car. The balance, comprising 40.1 per cent of the stored cars, were suitable for the transportation of certain commodities only. A further analysis of the reports shows that 56 per cent of the cars inspected were constructed prior to the year 1920. The cars covered by this survey did not include cars definitely classed as "Bad Order."

The check of locomotive condition was somewhat less assuring than that of freight cars. The railroads reported 5,549 locomotives stored in serviceable condition. Of these, 4,162 were inspected. Of those inspected, 3,275, or 78.7 per cent, were actually ready for service, while 887, or 21.3 per cent, were in need of repairs requiring three days or more time and the expenditure of $150 or more.

The locomotives were further classified as to type, age and tractive power. It was found that a substantial number of the stored locomotives were of types designed for switching and passenger service, and those whose wheel arrangement and tractive power would indicate their use for branch line and secondary service. Locomotives built prior to 1910 constitute 41.9 per cent of the stored power inspected, while an additional 39 per cent range from 13 to 23 years of age, leaving but 19.1 per cent less than 13 years old.

From the standpoint of tractive power, the adequacy of the locomotive reserve is still further out of proportion to the numerical ratio of stored locomotives to total owned. Of the units reported by the railroad as "stored serviceable," 41.5 per cent have tractive power less than 40,000 pounds, while 62.5 per cent rate less than 50,000 pounds. The locomotives under consideration do not include those definitely reported in Car Service Division bulletins as in "Bad Order" or awaiting shop for classified repairs.

Rates for Five-Day Workers

The Erie on February 1, will place on sale to and from New York City, commutation tickets, which provide for only 46 trips a month, this for the benefit of persons who make trips to the city regularly only five days a week. Prices will be reduced correspondingly.

Death of Frank P. Glass

Frank P. Glass, who has been serving as a member of the United States Board of Mediation under a recess appointment, and whose name had been sent by the President to the Senate for appointment for a five-year term beginning January 1, 1933, died at his home in Birmingham, Ala., on January 10.

Georgia Commission Starts Freight Rate Study

The Georgia Public Service Commission, on January 8, began an investigation into railroad class rates with a view to adjusting them in relation to similar rates in the Northeast. The order also directs railroads to show cause why rates should not be reduced.

M-K-T Safety Record

An all-time system safety record was established by the Missouri-Kansas-Texas during 1933, when employees completed the year without a single reportable accidental death. Reportable casualties among employees totaled 165. The ratio of casualties in 1933 to the total man-hours worked was 8.01 per 1,000,000 man-hours, while the ratio 16 years ago was 38.03.

Club Meetings

The Western Railway Club will hold its next meeting on Monday evening, January 15, at the Hotel Sherman, Chicago. J. A. Anderson, master mechanic of the Milwaukee, at Milwaukee, will present a paper on budgeting locomotive department expenditures.

The Canadian Railroad Club will hold its thirty-first annual dinner at the Windsor Hotel, Montreal, on Saturday evening, February 3.

Recommends that M. & O. Restore Standard Wages

Emergency board holds that "it is for the carrier to devise ways and means"

The White House on January 8 made public a report of the emergency board appointed to investigate a dispute between the receivers of the Mobile & Ohio and the organizations representing its employees who had threatened a strike after the receivers had put into effect reductions in pay greater than the 10 per cent reduction which was applied on railroads generally following the Chicago agreement of January 31, 1932. The board finds that the employees are entitled to the restoration of their wages to the basis of the Chicago agreement and that "it is for the carrier to devise the ways and means."

"Borrowing may be necessary," the board reports. "Whether aid comes from a private loan, from a subsidy, or from some governmental agency, or through a merger or grouping of the road with some other system, is not important in so far as the result is concerned. The road must work out the details." The board was composed of Davis R. Dewey, of Cambridge, Mass., Walter C. Clephane, of Washington, D. C., and Homer B. Dibell, of Duluth, Minn. The report points out that during the last few years the revenues of the carrier have greatly decreased. "Other competing roads have invaded the territory served by the Mobile & Ohio; federal and other barge lines have deprived the carrier of long-haul freight traffic formerly enjoyed; and trucks and busses have seriously affected the short-haul freight traffic. The piping of natural gas into the Mobile & Ohio territory reduced its coal traffic to one-third of its former volume, and the gradual cutting out of timber tributary to its line reduced the movement of forest products in approximately the same ratio.

"One solution of the present difficulty would be to grant governmental support adequate to maintain wages uniform with other roads and enable the carrier to continue to serve efficiently that portion of the population dependent on such service. If this can not be done, the only other alternative appears to be the joining of this road with some other carrier. The grouping of this road into a stronger financial transportation system might well be considered by the Interstate Commerce Commission and the Federal Coordinator. In this connection we can not overlook the fact that for all practical purposes this carrier is owned by the Southern Railway Company and that, as the evidence taken before us demonstrates, this railway is paying to the men on its own system a higher wage than is being paid on the Mobile & Ohio Railroad. It might be inferred that the longer the present status can be maintained, the longer the Southern Railway Company can defer the decision whether it will come to the relief of this road or relinquish it to other interests. Meanwhile the men, by reason of deferring this decision, would be com-

pelled to remain on a salaried basis lower than is being paid to the Southern's other employees. We can not subscribe to a doctrine which would lead to the conclusion that each branch line should be self-supporting. All are parts of an entire system. Each branch is a feeder to, and should, to any necessary extent, be fed by, other branches, so that the operation of the system as a whole may be productive of the greatest good to everyone concerned.

"It may be true that the restoration of the wages of which the men were deprived by the mediation agreement of September 12, 1932, will hasten the end of this road as a separate corporate entity, and that in so doing its employees will be deprived of their jobs. They have expressed themselves as willing to assume that risk and prefer to assume it, because they believe that if the road should be exposed to sale in insolvency proceedings or to some voluntary reorganization, it would be acquired by interests which would continue the operation of the railroad and retain the services of its employees at the standard rates of compensation."

Group to Study Consolidation

The Shippers' Conference on Railroad Consolidation has been organized by representatives of civic organizations in communities along the Atlantic seaboard for the purpose of investigating various plans for railway consolidation. The new group, which held its organization meeting in New York on January 4, is headed by Charles J. Fagg, manager of commerce and trade of the Newark (N. J.) Chamber of Commerce.

Automobile Baggage Rates Reduced in West

Marked reductions in private automobile baggage rates will be placed in effect on western railways on January 15. Beginning on that date, the automobiles of rail passengers will be transported as baggage by the railway for one first-class fare of 3.6 cents a mile if not less than two passenger tickets, one way or round trip, at the prevailing rate are purchased or used. Heretofore, four tickets were required.

Railway Employment in December

The number of employees of Class I roads as of the middle of December was 964,328, according to the Interstate Commerce Commission's monthly statement. This was a decrease of 11,497, or 1.28 per cent, as compared with the number in December, 1932, and a decrease of 33,177 as compared with the number in November, 1933. The number of executives, officials, and staff assistants showed a reduction of 5.78 per cent as compared with December, 1932.

One Year's Deaths on the Highways

Motor vehicle accidents claimed approximately 30,500 lives in the United States last year, according to preliminary estimates published by the National Safety Council; an increase of 3½ per cent over 1932 but a total below the all-time figure of 33,675, reached in 1931. About 14,000 of the 1933 victims were pedestrians. The increase during the last half of the year was 12 per cent, more than cancelling a decline of seven per cent shown in the first half.

Atlantic States Shippers' Board

The Atlantic States Shippers' Advisory Board, following its meeting in New York City, reports an expected increase, in the present quarter, of 11.5 per cent in freight shipments in the territory represented by the Board, as compared with one year ago. Decreases are predicted in fresh fruits, potatoes and other fresh vegetables; while in various important commodities the volume of traffic is expected to be about the same as in 1933. On the other hand, increases are expected in numerous commodities, as follows: iron and steel, 50 per cent; machinery, etc., 24 per cent; automobiles and parts, 30 per cent; coal and coke, 12.5; ores, 25; gravel, sand and stone, 18.2; chemicals and explosives, 14.6; salt, 11 per cent.

C. R. MacCarey, of Philadelphia, was chosen general chairman of the board, succeeding C. L. Hilleary, of New York.

The Standard 50-Ton Box Car

The Regional Co-ordinating Committees, representing the railways, have received communications from Co-ordinator Eastman, referring to the prospects for a considerable amount of car buying in the near future, as a result of the offer of the Public Works Administration to make loans to the railroads for that purpose. Five sample cars to the A. R. A. standard 50-ton, steel-sheathed, wood-lined box car designs, have been built under the direction of the Car Construction Committee of the Mechanical Division of the American Railway Association, and have been tested at the plant of the Pullman Company. It is expected that a report of these tests, as well as observations and tests made by some of the railroads, will be submitted shortly to the Car Construction Committee and the General Committee of the Mechanical Division, to determine whether any changes or modifications are necessary in any of the sample cars.

Net Deficit For Ten Months $25,701,589

The net deficit of the Class I railways, after fixed charges, had been reduced to $25,701,589 at the end of October, according to the Interstate Commerce Commission's monthly compilation of selected income and balance-sheet items. This compares with $144,394,501 for the corresponding period of 1932. For October there was a net income of $13,594,905, as compared with $20,055,214 for October, 1932. Loans and bills payable at the end of October amounted to $340,133,659, as compared with $282,996,604 in 1932. The commission's compilation follows:

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 145 reports (Form IBS) representing 150 steam railways

TOTALS FOR THE UNITED STATES (ALL REGIONS) †

For the month of October 1933	For the month of October 1932		For the ten months of 1933	For the ten months of 1932
		Income Items		
$57,264,774	$62,784,037	1. Net railway operating income	$398,238,654	$260,616,446
13,517,361	14,710,734	2. Other income	141,896,951	163,522,238
70,782,135	77,494,771	3. Total income	540,135,605	424,138,684
11,179,982	11,194,057	4. Rent for leased roads	110,474,694	107,626,985
44,190,947	44,543,020	5. Interest deductions	442,922,200	440,775,379
1,816,301	1,702,480	6. Other deductions	12,440,300	20,130,821
57,187,230	57,439,557	7. Total deductions	565,837,194	568,533,185
13,594,905	20,055,214	8. Net income	*d 25,701,589*	*d 144,394,501*
		9. Dividend declarations (from income and surplus):		
625,880	623,836	9-01. On common stock	46,836,097	54,377,316
509,504	509,835	9-02. On preferred stock	10,698,650	13,712,955

BALANCE-SHEET ITEMS

Selected Asset Items

	Balance at end of October 1933	Balance at end of October 1932
10. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$758,225,569	$755,614,504
11. Cash	330,064,007	334,701,904
12. Demand loans and deposits	40,103,559	35,719,018
13. Time drafts and deposits	55,793,071	32,320,394
14. Special deposits	32,715,081	28,912,618
15. Loans and bills receivable	10,390,515	17,510,476
16. Traffic and car-service balances receivable	57,755,698	54,449,546
17. Net balance receivable from agents and conductors	44,208,032	44,260,254
18. Miscellaneous accounts receivable	133,825,779	142,364,421
19. Materials and supplies	293,526,768	322,096,004
20. Interest and dividends receivable	42,956,770	41,502,366
21. Rents receivable	3,100,657	3,281,654
22. Other current assets	4,623,424	9,256,226
23. Total current assets (Items 11 to 22)	1,049,063,361	1,066,374,881
Selected Liability Items		
24. Funded debt maturing within six months*	221,751,074	171,442,265
25. Loans and bills payable‡	340,133,659	282,996,604
26. Traffic and car-service balances payable	71,475,373	73,338,876
27. Audited accounts and wages payable	203,334,909	205,469,430
28. Miscellaneous accounts payable	52,742,339	57,235,677
29. Interest matured unpaid	223,180,669	166,008,354
30. Dividends matured unpaid	4,804,132	5,001,839
31. Funded debt matured unpaid	97,556,452	50,970,674
32. Unmatured dividends declared	902,153	882,631
33. Unmatured interest accrued	110,455,061	110,730,939
34. Unmatured rents accrued	34,999,149	35,177,802
35. Other current liabilities	16,754,105	18,228,418
36. Total current liabilities (Items 25 to 35)	1,156,338,001	1,006,041,244

† Excludes returns for Class I Switching and Terminal Companies.

* Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

‡ Includes obligations which mature less than two years after date of issue.

d Deficit.

Wage Statistics for October

The total payroll for the 1,024,861 employees of Class I railways for October was $127,082,302, according to the Interstate Commerce Commission's monthly statement. The number, as of the middle of the month, was a decrease of 5,354 as compared with the number in September although it was 0.78 per cent greater than the number in October, 1932. The statement also shows that 1,136,984 employees were reported as having received some pay during the month either for full or part time.

I. C. C. Appropriations Recommended

Appropriations amounting to $5,430,970 for the Interstate Commerce Commission for the fiscal year 1935, an increase of $240,970 as compared with the 1934 appropriation, was recommended by the House appropriations committee in its report on the independent offices bill to the House on January 10. This is the amount estimated by the Bureau of the Budget. The total includes $2,526,216 for general administrative expenses, $778,888 for the Bureau of Accounts, $461,970 for safety work, $36,590 for signal safety systems, $449,606 for locomotive inspection, $1,052,700 for valuation, and $125,000 for printing and binding.

Dr. Splawn Appointed to I. C. C.

President Roosevelt on January 8 nominated Dr. W. M. W. Splawn to the Senate for appointment as a member of the Interstate Commerce Commission, succeeding Ezra Brainerd, Jr., whose term expired at the end of the year. Dr. Splawn has served for several years as special counsel for the House committee on interstate and foreign commerce, and in that connection has conducted several special investigations. The Senate committee on interstate commerce on Tuesday decided to question Dr. Splawn at a hearing before reporting on confirmation of the appointment. It is reported that some opposition may be offered by railroad labor organizations.

Increased Carloading Forecast

Freight car loadings in the first quarter of 1934 will be about 6.5 per cent above actual loadings in the same quarter in 1933, according to estimates compiled by the 13 Shippers' Regional Advisory Boards. On the basis of these estimates, loadings of the 29 principal commodities which constitute about 90 per cent of the total carload traffic will be 3,878,284 cars in the first quarter of 1934, compared with 3,641,416 actual loading for the same commodities in the corresponding period last year. With the exception of the Northwest board, each one of the 13 Shippers' Regional Advisory Boards estimates an increase in the loadings for the first quarter of 1934, compared with the same period in 1933.

Bus Industry Proposes Minimum Rate-Fixing by Code Authority

The National Recovery Administration has announced a hearing to be held on January 16 on an application submitted by the Motor Bus Association for a modification of its code by an amendment providing that on complaint by any passenger motor carrier, the code authority may, after notice and hearing, prescribe, subject to review by the Administrator, what will be a fair and reasonable rate, fare or charge or rule or regulation to be observed; and that thereafter, unless approved by the code authority (subject to review by the Administrator) no passenger motor carrier shall publish, demand, or collect any rate, fare or charge less than that so prescribed.

Regional Committees to Make Recommendations on Company Unions

Federal Co-ordinator Eastman held a conference on January 4 with members of the Regional Co-ordinating Committees on the relations between railroads and company unions, following his communication to them on December 8 urging that prompt steps be taken to bring about compliance with the provisions of the Emergency Transportation Act on the subject. It was arranged that the committees should prepare some recommendations to the individual railroads which he thought represented distinct progress in clearing the matter up and he expected to make them public as soon as he had received them formally.

More Allotments for River Improvements

An allotment of $22,590,000 to the War Department to aid in financing the construction of 14 reservoirs in the Muskingum Valley of east central Ohio has been announced by the Public Works Administration. Plans for the completed project, of which the total estimated cost is $45,305,000, contemplate a co-ordinated program for navigation and conservation along the Muskingum river and its tributaries.

An allotment of $3,000,000 for construction of a reservoir on the Tygart river in the Monongahela basin, about 2 miles above Grafton, West Virginia, was also announced. The purpose of the project is to provide stream regulation and flood control facilities on the Monongahela river and its tributaries besides improving navigation and flood control conditions in the Pittsburgh area.

Craftsmen Plan Eastman Protest

Employee associations that have no connection with the railroad brotherhoods or the American Federation of Labor are objecting to the plan of Joseph B. Eastman, federal co-ordinator of transportation, to divorce railway managements from any connection with or financial support of company unions. Leaders of the associations, who have been meeting since the first of December, contend that the enforcement of the order would nullify the gains which they have made for themselves and for which neither the brotherhoods nor the American Federation of Labor can take any credit. Meetings of the associations are being held to determine whether a common policy can be agreed upon which will enable them to oppose legally the Eastman ruling. Representatives of the western group of associations met at Kansas City, Mo., on December 4, while executives of shop crafts associations of eastern railroads met at Chicago on December 28. A general meeting of the eastern representatives was scheduled to be held in New York on January 11-12.

System-Wide N. & W. Fare Cut

A reduction in passenger fares to two cents a mile in coaches and three cents a mile in Pullman cars, with the elimination of the surcharge, on all trains on the entire system, will become effective on February 1, on the Norfolk & Western. The same fares covering a part of the railroad were put in effect on December 1, 1933.

"The reductions," the announcement said, "are being made on the Norfolk & Western in an attempt to increase rail travel. It is the purpose of the railroad to make rates low enough to create a greater demand for rail services as well as to attract travel from buses and private automobiles."

N. & W. passenger traffic officers expressed the opinion that the "new low fares, together with the greater comfort, safety, speed and convenience of rail travel over buses, will induce persons who have been using the latter means of transportation for economy reasons, to come back to the railroads."

New P. R. R. Chesapeake Bay Ferry in Service

A new automobile and passenger transport ferry, the Del-Mar-Va, was placed in service on January 7 by the Virginia Ferry Corporation, which operates, in conjunction with the Pennsylvania, a general ferry service, across Chesapeake Bay between Cape Charles, Va. and Little Creek, near Norfolk. The new boat, described as the largest and fastest of its kind in the United States, was built by the Pusey & Jones Corporation, Wilmington, Del. It is a twin-screw steamer of steel construction throughout, 260 ft. long and driven by two 1400 hp. steam engines of the Skinner Uniflow type. The ferry is designed to accommodate an average of 70 motor vehicles and a maximum of 1500 passengers. It will use the Pennsylvania's new ferry slips at Little Creek terminal on the Norfolk side, and at Cape Charles it will tie up to the railhead pier which extends into Chesapeake Bay. The distance between the two terminals is 26 mi. and the scheduled run for the new steamer is 1 hr. 40 min.

Fletcher and McReynolds to Address Railway Advertising Agents

R. V. Fletcher, general counsel of the Association of Railway Executives, and E. H. McReynolds, assistant to the president of the Missouri Pacific, will deliver the principal addresses at the meeting of the American Association of Railway Advertising Agents which is to be held at the Commodore Hotel, New York, on January 19. Judge Fletcher will speak on the present railway situation in relation to railway advertising, while Mr. McReynolds will include in his address discussions of the following: The necessity for increasing railway advertising appro-

priations; the desirability of segregating amounts now charged to advertising in order to show what is spent for actual creative advertising separately from amounts spent on informative services such as time-tables, menus, etc.; the budgeting of advertising expenses on a gross passenger revenue basis; and joint advertising.

Ohio Rate Increase Upheld by U. S. Court

An Interstate Commerce Commission order increasing intrastate freight rates on bituminous coal in Ohio to levels prevailing prior to August, 1932, was upheld by a three-judge federal court in Cleveland on January 8. The Ohio Utilities Commission, in August, 1932, ordered the Baltimore & Ohio to reduce rates to the Republic Steel Corporation plants in the northeast portion of the state on shipments from Ohio mines. Coal operators in adjoining states and railroads engaged in interstate transportation of coal opposed the state commission's order and the decision of the court sustained their opposition, on the ground that the order was discriminatory and disturbed a "finely balanced and nicely adjusted schedule of interstate and intrastate rates of bituminous coal from Western Pennsylvania, Northern West Virginia and Northeastern Ohio, with fixed differentials which have been regarded as essentially reasonable."

Additional Funds Proposed for R. F. C. Loans

A bill proposing to extend the life of the Reconstruction Finance Corporation from January 22 to February 1, 1935, and to increase the funds at its disposal by $850,000,000 was approved by the Senate banking and currency committee on January 9. Chairman Jones of the R. F. C. had furnished the committee with a statement showing the loans it had made since February, 1932, including $411,845,678 authorized for loans to railroads up to the end of the year and suggesting $75,000,000 as the amount for additional loans to railroads with the proposed $850,000,000 addition.

Actual disbursements of railroad loans to the end of the year were $337,079,621 after five roads had repaid $57,014,636. The statement also pointed out that there appears at this time a deficiency in the present market or appraised value of the collateral securing the loans of 14 roads. Two roads have gone into receivership and four into bankruptcy since the loans were made "so that they appear to be inadequately secured at this time," the statement said; "also the collateral securing loans to eight other carriers appears somewhat deficient. Our railroad division estimates the total deficiency of the 14 roads involved to be a little less than $30,000,000."

Mid-West Shippers' Board

An increase of 5.2 per cent in shipments in the territory of the Mid-West Shippers' Advisory Board during the first quarter of 1934 was forecast at the annual meeting of the board in Chicago on January 4. The estimate was based on statistics gathered two weeks prior to the meeting and during the meeting a more optimistic view point prevailed, the increase anticipated being 10 per cent. The increases expected are mainly in coal, iron and steel, agricultural implements, automobiles, cement and building materials. Decreases are expected in shipments of fresh fruits, vegetables and grain. The action of the federal government in making loans of 45 cents a bushel on corn, according to reports, has led farmers to hold that grain in their cribs because of present low prices, thus curtailing shipments. Silica, which is used in making bottles, showed the largest single gain with an increase of 150 per cent.

Earl J. Bryan of the Wisconsin Paper & Pulp Association was elected general chairman of the board.

Preliminary Report on New York Bay-Delaware River Waterway

The Chief of Engineers has forwarded to the Secretary of War without recommendation as to the advisability of undertaking the work, his report on the preliminary examination and survey of New York Bay-Delaware River section of the Intracoastal Waterway, authorized by the river and harbor act of 1930 for the sole purpose of finding and recommending the most desirable route for such waterway, with a minimum depth of 25 feet and adequate width, with plans and estimates of cost, and with the provision that the state of New Jersey or other local interests shall furnish all necessary rights of way without cost to the United States.

The estimated cost as prepared by the board of engineers and corrected to agree with prices existing since the enactment of the national recovery act, exclusive of rights of way and disposal areas, is approximately $210,000,000, with annual cost of operation and maintenance, including that of both highway and railroad bridges, at approximately $1,000,000. The Secretary of War submitted the report to the Speaker of the House.

French Railroad Men Charged with Homicide

The New York Herald-Tribune, in a dispatch from Paris, January 3, says that six officers and employees of the Eastern Railroad of France have been placed under arrest in connection with the disastrous collision at Lagny, on December 23, wherein 200 persons were killed, charged with involuntary homicide, through negligence and failure to comply with rules. The names of these men are: Merlin, head engineer of operations, Section No. 1; Martelot, head engineer of the central operations section; Montignault, head of the Eastern Railroad yards at La Villette, Paris, where trains are made up; Mougeot, a technical inspector of equipment and operating material, Section No. 1, and Caron, a worker assigned to checking signal records. The engineman and fireman have been under arrest since the day of the collision.

The dispatch further says that investigation thus far has dealt mainly with the behavior of the cab signal. It is alleged that the cab signal apparatus did not function at this place on the night of the collision, although it operated properly in other block sections; and that the faulty operation had occurred also on the previous day. The inspector of the speed-record tape, of the Flaman apparatus, which operates in connection with the cab signal, had admitted that he had habitually neglected to check the tapes throughout their whole length.

President Thinks Rail Earnings Should Be Adequate for Sinking Funds

President Roosevelt has let it be known that he is heartily in favor of the position taken by the Interstate Commerce Commission and others that the railroad companies should set up sinking funds out of net income for the purpose of retiring a part of their funded debt. The Commission's recommendation was that this be done in part before maturity. In fairness to the companies, however, the President also believes that this means that regulatory bodies ought to seek to make it possible for railroads and utilities to earn enough to set up sinking funds and that for this reason rates should not be reduced so much as they might be otherwise. The President feels that one of the chief troubles of the railroad financial situation is that so large a proportion of their capital structure has been in the form of mortgage indebtedness instead of stock and that the debts are constantly refunded instead of paid off, and that that fact is illustrated by the condition that existed last spring when a number of railroads that had been solvent for many years were faced with receivership and probably other major carriers might have been in a similar situation within six months if conditions had continued. In his opinion such a situation would have been caused by inability of the railroads to meet the interest on their mortgage debt whereas if their fixed charges had been less they could have faced the situation more easily because dividends may be passed without receivership resulting.

Milk Strikers Interfere with Mails

Interference with the mails by pickets endeavoring to prevent milk from moving from Wisconsin points to Chicago during a strike of producers, caused much disturbance from January 5 to January 10, but on the 9th further serious consequences were averted by the cessation of the strike following a warning issued by federal postal authorities.

On January 9, a mail train of the Chicago, Milwaukee, St. Paul & Pacific was stopped at Wadsworth, Wis., when pickets forced their way into a tower and compelled the signalman to set the signal against the approaching train. The train was held for about 20 minutes until the pickets were convinced that it carried no milk. Earlier in the evening pickets stopped a Milwaukee freight train at Rondout, Ill., by setting fire to ties piled on the track. After the train stopped, the pickets broke the seals of 80 cars and threw out a number of cases of merchandise. A passenger train following the

freight train was stopped more than an hour.

Pickets stopped two trains on the Chicago, North Shore & Milwaukee by building bonfires on the track at the Illinois-Wisconsin state line. The first, a passenger train, was allowed to proceed. The second, a merchandise train, was searched. Two freight trains on the Minneapolis, St. Paul & Sault Ste. Marie were stopped at High's Crossing, Ill., and after a search were allowed to proceed. At Harvard, Ill., a train on the Chicago & North Western was stopped while pickets broke the seals and searched the cars. At Burlington, Wis., a Soo Line milk express was stopped and seven carloads of milk, about 12,000 gallons, destroyed

Panama Canal Annual Report

The net revenues from Panama Canal operations proper were $10,775,500 in the fiscal year 1933, as compared with $11,-194,800 the year before, and were $7,-449,344 below the amount of such revenues in the peak year, 1928, according to the annual report of the governor, J. L. Schley. Net revenues from business operations under the Panama Canal in 1933 were $1,135,708. The combined net revenues accruing from the Canal and its business units totaled, accordingly, $11,-911,209. The capital investment at the beginning of the fiscal year was $533,106,-009 and the net revenue represented a return of 2.23 per cent on the investment.

The foregoing figures do not include the operations carried on with funds of the Panama Railroad Co.; these resulted in a net profit of $784,432, as compared with $782,464 in the preceding year.

Transits of commercial vessels, 4,494, were 12 less than in 1932, a decline of less than three tenths of 1 per cent, and the daily average transits, due to there having been 366 days in 1932, was the same, 12.31. This compares with 15.15 in 1931, 16.95 in 1930, 17.37 in 1929 and 17.63 in the peak year of 1928. The showing in transits in 1933 was more favorable than in other features of the traffic, due to the inclusion of an increased proportion of small vessels. The net tonnage, Panama Canal measurement, of traffic was 3.4 per cent less in 1933 than in the preceding year, tolls were lower by 5.2 per cent and quantity of cargo by 8.2 per cent.

With respect to the four features usually considered in canal traffic—transits, Canal net tonnage, tolls, and tons of cargo carried—the traffic in 1933 was the lowest since 1923 for transits, tolls and net tonnage, and the lowest since 1922 for cargo tonnage.

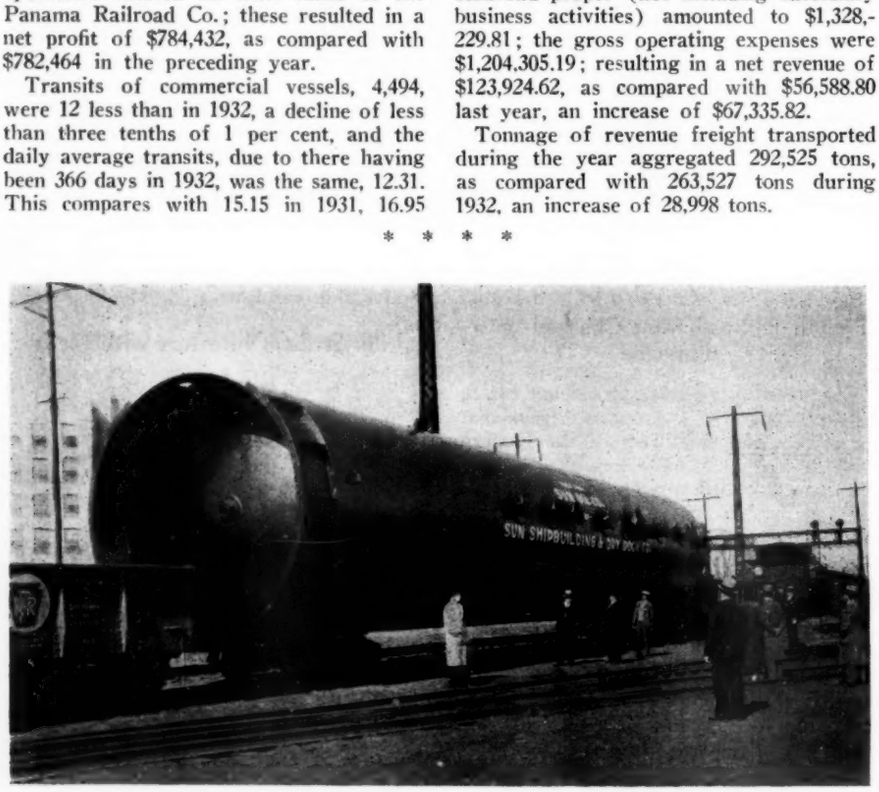
Net tonnage of the commercial vessels passing through the Canal in 1933 aggregated 22,821,376 tons, Panama Canal measurement, a decrease of 3.4 per cent in comparison with 1932. Tolls in 1933 amounted to $19,620,458.53, decreasing 5.2 per cent in comparison with tolls in the preceding year.

Cargo carried through the Canal in 1933 amounted to 18,177,728 tons and was 8.2 per cent less than the cargo in 1932. The largest proportion of this decrease occurred in the Atlantic to Pacific movement, which declined 19.9 per cent; in the opposite direction there was a decline of 3.6 per cent. This is a reversal of the trend in 1932, the heaviest decrease in that year having been in the movement from the Pacific to the Atlantic.

The gross revenues during the fiscal year 1933 from the operations of the Panama Railroad proper (not including subsidiary business activities) amounted to $1,328,-229.81; the gross operating expenses were $1,204,305.19; resulting in a net revenue of $123,924.62, as compared with $56,588.80 last year, an increase of $67,335.82.

Tonnage of revenue freight transported during the year aggregated 292,525 tons, as compared with 263,527 tons during 1932, an increase of 28,998 tons.

* * * *



Largest Single Shipment, in Point of Size, Ever Handled by the Pennsylvania

This cylindrical fractionating tower, built at the Chester (Pa.) plant of the Sun Shipbuilding Company for use in the refining of gasoline, was recently hauled over the P. R. R. Maryland division from Chester to Marcus Hook, Pa., six miles. It is 14 ft. 8½ in. in diameter, 83 ft. long and weighs 290,000 lb.—dimensions so great that it was necessary virtually to construct a car out of the shipment and the two pairs of freight car trucks on which it rode. Also, it was necessary, at several points along the route of the movement, to throw the track out of its permanent line in order to permit of sufficient clearance; as the route was through electrified territory, the current was shut off for the track the train was occupying, and all tracks were cleared while the movement was being made.

Construction

CENTRAL OF NEW JERSEY.—Bids are soon to be asked for by this road for the removal of an existing structure and for the erection of a new three-span deck girder bridge spanning Morris canal bed and the proposed New Jersey state highway No. 1 at Jersey City, N. J. This work is to cost about $125,000. Bids are also to be asked for for the construction of a highway underpass for New Jersey state highway No. 29 on the main line, Central division, between North Branch and Raritan, N. J. to cost about $83,000. The New Jersey State Highway Commission will ask bids for the widening of a highway underpass for New Jersey state highway route No. 25, on the C. N. J. main line, Spring street, Elizabeth, N. J., to cost about $155,000.

CHICAGO & NORTH WESTERN.—A contract has been awarded to the Zitterell-Mills Company, Webster City, Iowa, for the construction of the substructure for a subway to carry Primary Highway 64 under the tracks of the North Western at Colo, Iowa.

ILLINOIS CENTRAL-YAZOO & MISSISSIPPI VALLEY.—These railroads have completed negotiations with the federal government for the construction of two bridges for carrying their lines across the floodway of the Bonnet Carre spillway, a government flood-control project located on the Mississippi river about 30 miles above New Orleans, La. Both bridges will be of creosoted timber construction with some steel girder spans. The Illinois Central bridge will be a double-track structure 12,000 ft. long while that carrying the Y. & M. V. will be of single-track construction and 8,000 ft. in length. Arrangements for immediate construction of the bridges are now being made.

LEHIGH VALLEY.—This road has been granted permission by the Public Service commission of Pennsylvania to abolish a temporary crossing at grade and to construct an overhead bridge over its tracks in the village of Cranberry, Hazle township, Luzerne county, Pa.

LEHIGH VALLEY.—The elimination of the Mount Hope avenue crossing of this road on the West Henrietta-Rochester county highway about one mile southeast of Mortimer station in the town of Henrietta, Monroe county, N. Y., has been directed by the New York Public Service Commission. The elimination of the crossing is to be accomplished by placing the grade of the highway above the grade of the railroad, in accordance with a plan submitted by the State Department of Public Works. The commission also affirmed a previous order directing the elimination of the Cedar Swamp crossing of this road located on the Rush-Henrietta county highway about 2½ miles south of Henrietta station. The crossing is to be eliminated by placing the highway above the railroad at an estimated cost of $124,-000 exclusive of land and property damages.

Equipment and Supplies

P. W. A. Loans to Railroads

The Public Works Administration has reduced the general allotment of $51,000,000 for the purchase of rails which it announced on November 2 to $41,000,000, because specific allotments have since been made to several railroads for the purchase of rails and fastenings. The allotment of $84,000,000 to the Pennsylvania has also been reduced to $77,000,000 because of some changes, and this makes the total amount now allotted for railroad loans $194,607,000. The $3,300,000,000 fund appropriated for the P.W.A. has now been practically all allotted but it expects to receive more at the hands of Congress and some considerable sums may yet be available from allotments which are not taken up. In addition to the $77,000,000 for electrification a specific allotment of $3,637,500 has been made to the Pennsylvania for the 100,000 tons of rails which that company recently ordered.

An allotment of $1,500,000 to the Lehigh & New England for the purchase of 500 freight cars, estimated to create 2,800,000 man-hours of employment was announced by the P. W. A. on January 4. An additional allotment of $225,000 to the Chesapeake & Ohio was also announced, increasing the previous allotment to this company to $18,290,000 because the company has decided to increase the number of cars of one type that it will buy and decrease the number of another type.

The Interstate Commerce Commission has approved the expenditure proposed to be made by the Lehigh Valley, largely with funds loaned by the Public Works Administration, of $2,199,999, for the repair of 60 locomotives at an approximate cost of $515,848, heavy repairs to 1,000 steel hopper-bottom coal cars at an approximate cost of $650,151, and the rebuilding of 1,000 steel underframe box cars at an approximate cost of $1,034,000.

The commission has approved the proposed expenditure by the Erie of $11,845,750, to be financed by the Public Works Administration, for the purchase of 3,775 freight cars at a cost of approximately $9,057,250 and 133 passenger and mail cars at a cost of approximately $2,788,500.

The commission also approved on January 8 the proposed expenditure by the New York, New Haven & Hartford of $3,500,000 for which it had applied to the P. W. A. for repairs to and the general overhauling of passenger equipment, and also that by the receivers of the Wabash of $1,489,803 for 10,000 tons of rail and fastenings and the rehabilitation of 1,437 cars.

The commission on January 8 denied a petition of the Boston & Maine for approval of the release of a portion of the collateral pledged with the Reconstruction Finance Corporation to secure a loan of $7,569,437 which the company had desired to use as collateral for a loan of $1,100,000 from the P. W. A.

LOCOMOTIVES

THE LOUISIANA & ARKANSAS is inquiring for three 2-8-2 type locomotives.

FREIGHT CARS

THE ALASKA RAILROAD is inquiring for 20 hopper-bottom coal cars of 55 tons' capacity.

THE CENTRAL OF GEORGIA has sent out a preliminary inquiry for 200 hopper cars of 70 tons capacity.

PASSENGER CARS

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC is inquiring for 25 baggage cars.

IRON AND STEEL

THE ILLINOIS CENTRAL is inquiring for 900 tons of structural steel for a viaduct at Big Clifty, Ky.

THE LOUISIANA & ARKANSAS is inquiring for 2,400 tons of structural steel for the Bonnet Carre spillway bridge at Naco, La.

THE MISSOURI PACIFIC has ordered 25,000 tons of rails from the Inland Steel Company, the Illinois Steel Company, the Colorado Fuel & Iron Company and the Tennessee Coal, Iron & Railroad Company.

NEW YORK CENTRAL LINES.—President F. E. Williamson has announced that arrangements are being made to purchase probably 40,000 tons of rail for 1934 delivery.

THE ATCHISON, TOPEKA & SANTA FE has ordered 34,700 tons of rails and 1,600 kegs of bolts, the distribution being as follows: Colorado Fuel & Iron Company, 23,871 tons of rails and 1,200 kegs of bolts; Illinois Steel Company, 6,818 tons of rails and 200 kegs of bolts; Inland Steel Company, 1,704 tons of rails and 200 kegs of bolts; and Bethlehem Steel Company, 2,307 tons of rails.

THE LEHIGH & NEW ENGLAND has placed orders for rail accessories as follows: 22.47 tons track bolts with the Bethlehem Steel Company; 192 tons splices (Head-free), 5 tons rail joints, 4.17 tons offset splices with the Rail Joint Company; 64 tons track spikes with W. Ames & Company; 400 tons tie plates with the Bethlehem Steel Company and the Carnegie Steel Company, and 34,000 rail anchors with the P. & M. Company.

Trucks Too Big Now

An effort is to be made by big commercial trucking companies, it is reported, to have the law limiting the size of trucks on State roads amended so as to increase both the permitted size and weight. The law limits the weight of truck and load to 18,000 lb., the length of a truck to 26½ ft. and of truck and semi-trailer to 30 ft., the width to 96 in. and the height to 11½ ft. To increase these dimensions would be an outrage.

On some of the narrow State roads in Kentucky there is barely room for a passenger car to pass one of those gigantic trucks which carry general merchandise from city to city. When two trucks meet they must proceed cautiously. Frightened or over-cautious drivers of passenger cars, especially women, often go into the ditch when one of those carriers of box car dimensions looms up in front of them.

One particular disadvantage is the fact that on a two-lane road the driver of a passenger car or small truck following one of these enormous vans is unable to see over, around or beyond the great moving obstruction. This results in blocking traffic and sometimes in accidents.

It is only the operators of commercial bus lines who are demanding this privilege. For ordinary commercial traffic, including farmers, manufacturers, merchants' trucks, the present size limits are large enough. They might even be reduced.

From the Louisville (Ky.) Courier Journal.

SIGNALING

P. & L. E. Petition for Relief

The Pittsburgh & Lake Erie has petitioned the Interstate Commerce Commission to vacate the orders issued in 1922 and 1924 in so far as they require the continued maintenance and operation of automatic train-control devices between Pittsburgh, Pa., and Youngstown, Ohio.

MISCELLANEOUS

CANADIAN PACIFIC.—According to an announcement made by H. B. Bowen, chief of motive power and rolling stock at Montreal, this road will increase its monthly employment early in January from 10 to 14 days. For some time past, the 6,000 or more men in the Canadian Pacific shops have been restricted to 10 days a month. Grant Hall, vice-president, stated that the increased monthly employment at present would apply only to shop men.

AN UNIQUE TRAIN of eight coaches will move out of Duluth, Minn., over the Northern Pacific on January 13 on a seven-day tour of 29 towns in Minnesota and North Dakota. The train, which has been characterized as the "Train of Hardware Progress", is sponsored by the Kelley How Thomson Company, wholesale hardware dealer at Duluth. This train reverses the procedure of other years when retail customers were induced to visit the market at the Duluth wholesale house. This year the wholesale house proposes to visit the retailers. The train will be arranged to represent a modern exhibition hall, with products attractively arranged and in working order. Sleeping accommodations are provided for the representatives who will travel on the train and, in addition, club facilities are available in dining and observation cars for the entertainment of the retailers and their friends in the various communities.

Supply Trade

Hearing on Railway Appliances Code

Withdrawal by the Railway Hand Brake Association of its proposed code, and an agreement whereby hand brake manufacturers will come under provisions of the railway car appliances code, featured public hearing on January 8 on four supplements to the basic code of fair competition approved for the fabricated metal products manufacturing and metal finishing and metal coating industry. The hearing was conducted by Assistant Deputy Administrator L. S. Horner. C. M. Dinkins, counsel for the Fabricated Metal Products Federation, formally presented the codes proposed for the railway car appliances industry.

After amendments to the code for the railway car appliances industry had been read by Mr. Dinkins, L. Duncan Lloyd, counsel for the Railway Hand Brake Association, stated that his client wished to withdraw its own proposed code and be governed by provisions of the code just read. Mr. Lloyd asked, however, that there be included in the railway car appliances code certain additions to the fair trade practice section to make it more closely conform to the customs sought by his group. At the conclusion of the hearing, Deputy Horner announced there would take place immediately a series of conferences between code committees and NRA advisers in order to perfect the three codes for approval by the Administrator.

S K F Industries, Inc., has moved its general and executive offices from New York to Front street and Erie avenue, Philadelphia, Pa.

H. H. Linton has been appointed eastern sales representative for the **W. N. Thornburgh Manufacturing Company,** Cicero, Ill. Mr. Linton's headquarters are in the Grand Central terminal, New York City.

The Welding Equipment & Supply Company, 2720 East Grand Boulevard, Detroit, Mich., has been appointed distributor for Universal arc welders, accessories and electrodes, by the **Universal Power Corporation,** Cleveland, Ohio.

J. V. Honeycutt has been appointed assistant general manager of sales and **E. E. Goodwillie** has been appointed assistant to the vice-president in charge of sales of the **Bethlehem Steel Company,** both with headquarters at Bethlehem, Pa.

F. R. Faulk has been appointed Pittsburgh district representative for Universal arc welders, accessories and welding electrodes by the **Universal Power Corporation,** Cleveland, Ohio. His headquarters are located at 50 Penn avenue, Pittsburgh, Pa.

F. A. Shick has been appointed vice-president and controller, **J. M. Larkin,** vice-president in charge of industrial and public relations and **C. R. Holton,** vice-president in charge of purchasing of the **Bethlehem Steel Company,** all with headquarters at Bethlehem, Pa.

C. B. Crockett, former secretary of the Industrial Truck Association and more recently a partner in the firm of Crockett, Lightner & Smith, engineers of New York, has become associated with the **Cleveland Tractor Company,** Cleveland, Ohio, as sales engineer. He will develop the application of Cletrac crawler tractors with necessary special equipment to the problems of maintenance of way departments, railroad shops and railroad purchases and stores departments.

Fred P. Biggs has been appointed assistant vice-president of the **American Brake Shoe & Foundry Company,** with headquarters at Chicago. Mr. Biggs entered the employ of this company in 1916 as a service engineer with headquarters at New York. During the World War he served as a military aviator both in this country and in France and at the conclusion of the war he resumed his duties as service engineer. In 1922 he was transferred to Chicago as salesman, which position he held until his appointment as assistant vice-president which became effective on January 1.

Lawrence W. Wallace, formerly and since its organization, executive secretary of the American Engineering Council, relinquished that office on January 1, and became vice-president, in charge of the Washington office, of the **W. S. Lee Engineering Corporation,** with offices in the Woodworth building, Fifteenth and H streets, N. W., Washington, D. C. Mr. Wallace was born in Webberville, Tex., August 5, 1881, and was graduated from Texas A. & M. College in 1903, receiving his full mechanical engineering degree at Purdue University in 1912. He served a special apprenticeship on the Gulf, Colorado & Santa Fe Railway, and from 1905 to 1913 was assistant professor, and from 1913 to 1917, professor of railway and industrial management at Purdue University. For two years he was assistant general manager of the Diamond Chain & Manufacturing Company at Indianapolis, Ind., after which he became director of the Red Cross Institute for the Blind at Baltimore, Md. He was made executive secretary of the American Engineering Council at Washington, D. C., in 1921. He is the author of books on "Fire Losses—Locomotive Sparks," and "Steel Freight Car Design," and prepared the chapter on Engineering in Government for the symposium "Toward Civilization." He was awarded the Cross of Knight of the Order of the White Lion, Czechoslovakia.

William I. Howland, Jr., assistant general manager of sales of the **Illinois Steel Company,** Chicago, has been elected vice-president and general manager of sales, to succeed **Edwin S. Mills,** who has resigned in the interest of his health. Mr. Howland graduated from Yale university in 1908, with the degree of mechanical engineer, and in the same year entered the employ of the Illinois Steel Company in the operating department. He was later transferred to the sales department, where he remained until 1916, when he was placed in charge of sales of alloy and electric steel for the Illinois Steel Company and the Carnegie Steel Company. In 1917, he entered the United States Navy and in 1919, returned to the employ of the Illinois Steel Company as assistant sales manager

William I. Howland, Jr.

in the bar department. On December 1, 1926, he was promoted to assistant general manager of sales of bars, strips and alloy steels, which position he has held until his recent election.

Mr. Mills was born at New Britain, Pa., on January 5, 1870, and in 1895, entered the employ of the Carnegie Steel Company as manager of sales at Cleveland, Ohio. Subsequently, he was general manager of the Pittsburgh Steamship Company, agent of the Oliver Iron Mining Company and assistant to the first vice-president of the United States Steel Corporation at New York. From 1910 to 1919, he served as special sales agent of the Carnegie Steel Company and in the latter year was appointed general manager of sales of the Illinois Steel Company. He also served as manager of sales of the Carnegie Steel Company and the Tennessee Coal, Iron & Railroad Company. In 1926, he was elected vice-president and general manager of sales of the Illinois Steel Company, the position he was holding at the time of his retirement.

OBITUARY

Joseph S. Oechsle, a consulting engineer of the Worthington Pump & Machinery Corporation, Harrison, N. J., died at the Hahnemann hospital, Philadelphia, Pa., on December 24, at the age of 39. Mr. Oechsle was one of the founders and subsequently president of Metalweld Incorporated, Philadelphia, manufacturers of portable air compressors, before that company was consolidated with Worthington in 1931.

TRADE PUBLICATIONS

"Spots of Heat" is the title of a small booklet published by the General Electric Company, in which applications of spot, strip and immersion heaters are shown in the form of consecutive frames of motion picture film.

Mercury Trackless Train—The Mercury Manufacturing Company, Chicago,

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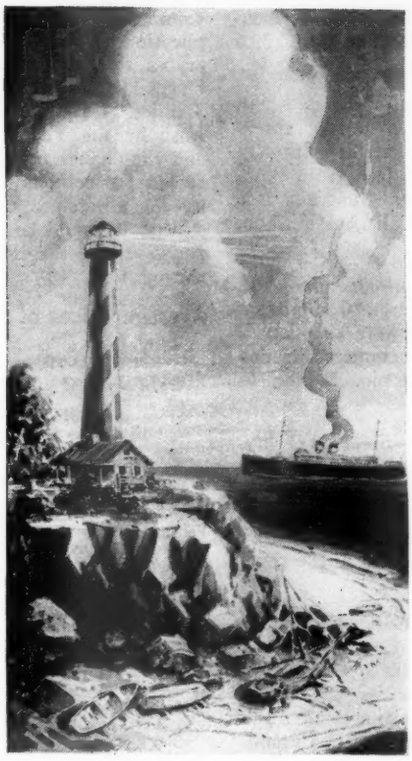
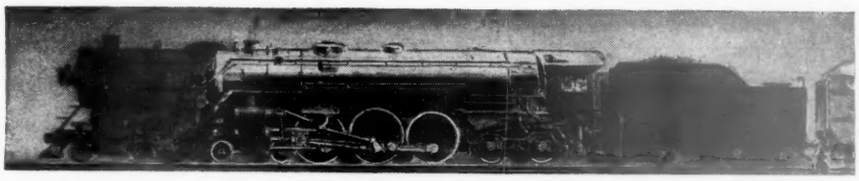


Lights that burned all day just to be ready for use at night would be an appalling waste.

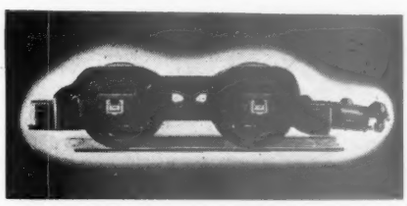
The BOOSTER Supplies Power *Only* When You Need It



It is a similar waste to build a locomotive with large cylinders and perhaps another pair of drivers just to provide power for starting. Then, the big cylinders continue to work all the rest of the trip when the peak power is not needed.

Rather use The Locomotive Booster to supply the power peaks and combine it with a smaller cylindered main engine. Once the need for the peak power has passed, The Locomotive Booster becomes inoperative. Then the smaller locomotive handles the train efficiently for the rest of the trip.

The combination of the Booster and smaller main engine cylinder results in reduced maintenance and increased operating efficiency.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

has put out an eight-page booklet, known as Bulletin 160, in which are set forth the advantages of the tractor-trailer method of handling materials, together with a description of the various tractors, lift trucks and trailers of this company.

STORAGE BATTERIES—A 24-page illustrated booklet has been published by the Edison Storage Battery Division of Thomas A. Edison, Inc., under the title "Storage Batteries for Railway Train Air Conditioning." The booklet describes the characteristics of the Edison Nickel-Iron-Alkaline Batteries, and shows how these characteristics conform with the requirements of air conditioning service.

Financial

BALTIMORE & OHIO.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Cheat Haven & Bruceton to abandon the line of the latter company between Morgan Run Junction, W. Va., and Laurel Furnace, 1.2 miles.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Trustee.*—The Interstate Commerce Commission on January 8 added the name of H. R. Kurrie, president of this company, to its standing panel of trustees in bankruptcy cases, thereby making him eligible for appointment by the court as trustee.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Securities.*—The Interstate Commerce Commission has authorized this company to issue $500,000 of promissory notes to be used to procure part of the funds necessary to meet interest requirements and to pledge as collateral security $233,000 of series A and $4,258,000 of series B first and general mortgage bonds.

ERIE.—*Bonds.*—The Interstate Commerce Commission has extended from December 31, 1933, to December 31, 1935, the time until which this company is permitted to pledge $5,895,000 of its first consolidated mortgage general lien 4 per cent bonds as collateral security for short term notes.

INTERNATIONAL-GREAT NORTHERN.—*Abandonment.*—The trustees have applied to the Interstate Commerce Commission for authority to abandon a branch line from Calvert, Tex., to Calvert Junction, 5.25 miles.

LEHIGH & NEW ENGLAND.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line about one mile in length reaching the shore of Lake Popponoming in Monroe county, Pa.

LOUISVILLE & NASHVILLE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a 3.3-mile line between North Alabama Junction, Ala., and Searles.

MARYLAND & DELAWARE SEACOAST.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Lewes, Del., to West Denton, Md., 39.6 miles.

MINARETS & WESTERN.—*Abandonment.*—The trustee has applied to the Interstate Commerce Commission for authority to abandon this company's line, from Pinedale, Calif., to Pinedale Junction, 4.5 miles, and from Friant, Calif., to Wishon, 39.3 miles.

NEW MEXICO MIDLAND.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon as to interstate and foreign commerce its line extending from San Antonio, N. M., to Carthage, 10 miles.

NORFOLK & WESTERN.—*Bond Maturity.*—This company will purchase and retire an issue of $5,000,000 of its improvement and extension 6 per cent bonds which mature February 1. Of the total of this issue $1,867,000 is already held in the company's treasury.

OKLAHOMA CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized the abandonment by this company of two segments of its line, from Lehigh, Okla., to Ada Junction, 39.88 miles, and from Byars Junction to Purcell, 21.11 miles. It has also authorized the abandonment of operation of the lines by the Atchison, Topeka & Santa Fe.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The trustees have applied to the Interstate Commerce Commission for authority to abandon a line from Weir City, Kan., to Mackie, Mo., 2.75 miles, and one from Miller to South Greenfield, Mo., 12.1 miles.

ST. LOUIS-SAN FRANCISCO.—*Oil Properties.*—James M. Kurn and John G. Lonsdale, trustees, have filed an application with the United States District Judge C. B. Faris for authority to develop the oil properties along the right-of-way of the Frisco. Before the present trusteeship the Frisco entered into leases for the development of the oil properties and mineral lands on a royalty basis. The trustees seek the right to enter into leases or other agreements for locating, developing, producing and selling gas, oil or minerals.

ST. LOUIS SOUTHWESTERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to pledge its equity in $23,903,000 of general and refunding mortgage bonds and $474,000 of Southern Illinois & Missouri Bridge first mortgage bonds as collateral for $1,727,525 of notes issued to the Railroad Credit Corporation.

SOUTHERN PACIFIC R. R.—*Control of Tucson & Nogales.*—The Interstate Commerce Commission has authorized this company to acquire control of the Tucson & Nogales by purchase of its capital stock from the Southern Pacific Company. The T. & N. extends from a connection with the Southern Pacific R. R. at Tucson, Ariz., to a connection with the New Mexico & Arizona at Calabasas, 55.4 miles. The latter road in turn connects with the Southern Pacific R. R. in Mexico.

VICKSBURG BRIDGE & TERMINAL.—*Authority to Operate Denied.*—The Interstate Commerce Commission has denied the application of this company to operate a line across the Mississippi river from Vicksburg, Miss., to Delta, La., approximately 3 miles. The line is now operated under lease by the Yazoo & Mississippi Valley and the change contemplated was designed to put the company under the jurisdiction of the Interstate Commerce Commission so that it would be in a position to secure funds from the Reconstruction Finance Corporation.

Average Prices of Stocks and of Bonds

	Jan. 9	Last week	Last year
Average price of 20 representative railway stocks.	39.10	39.67	26.70
Average price of 20 representative railway bonds.	69.58	69.18	58.94

Dividends Declared

Atlanta & Charlotte Air Line.—$4.50, semi-annually, payable March 1 to holders of record February 20.

Carolina, Clinchfield & Ohio.—$1.00, quarterly; Stamped Certificates, $1.25, quarterly, both payable January 15, to holders of record January 10.

Cleveland, Cincinnati, Chicago & St. Louis.—$5.00, semi-annually; Preferred, $1.25, quarterly, both payable January 31 to holders of record January 20.

East Pennsylvania.—6 Per Cent Guaranteed, $1.50, semi-annually, payable January 16 to holders of record January 6.

Michigan Central.—$25, payable January 31 to holders of record January 20.

Pittsburgh, Cincinnati & St. Louis.—$2.50, payable January 20 to holders of record D January 10.

Stony Brook.—$3.00, semi-annually, payable January 3 to holders of record December 30.

Virginian.—Preferred, $1.50, quarterly, payable February 1 to holders of record January 20.

Railway Officers

EXECUTIVE

J. W. Davin, assistant general superintendent of transportation of the Chesapeake & Ohio, has been appointed assistant to the president, with headquarters at Cleveland, Ohio, and Huntington, W. Va.

In accordance with an agreement between the Great Northern and the Northern Pacific covering the operation of the jointly-owned Spokane, Portland & Seattle, in which it is provided that the presidents and general managers of the two northern lines shall alternate in these positions on the S. P. & S., **W. P. Kenney,** president of the Great Northern has assumed the presidency of the S. P. & S. for 1934, this position having been held during 1933 by **Charles Donnelly,** president of the Northern Pacific, who will act as vice-president during the current year, succeeding Mr. Kenney. **J. H. O'Neill,** general manager of the Great Northern has been appointed to a similar position on the S. P. & S. for 1934, succeeding **W. C. Sloan,** general manager of the Northern Pacific.

OPERATING

P. L. Peffer, assistant superintendent on the New York, Chicago & St. Louis, at Buffalo, N. Y., has been promoted to superintendent of the Buffalo and Cleve-

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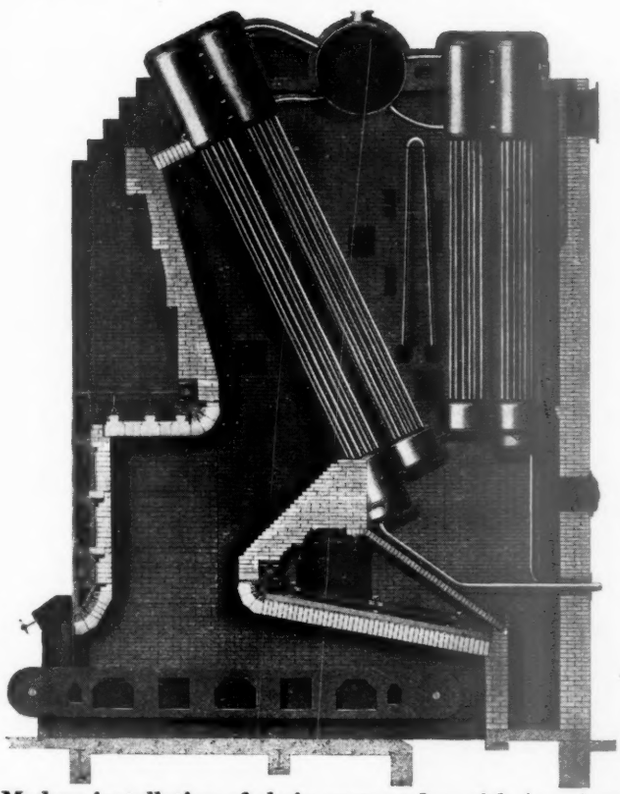
INDUSTRY, TOO
Has Its Arch Problems



Modern installation of chain grate stoker with American suspended arches and American sectionally supported air cooled front and side walls designed for burning lowest grade anthracite screenings.

American Arch Company's reputation as combustion specialists has spread thru all industry.

Heating furnaces in the country's greatest steel plants have roofs designed by American Arch Company experts.

Oil still arches and air-cooled side walls by American Arch Company are used in the leading oil refineries. The largest units in the world are so equipped.

Boiler furnaces have turned to American Arch Company for air-cooled side walls and arches, including the biggest units of any railroad power plant.

Everywhere throughout industry, combustion problems of this nature are being brought to American Arch Company.

Meanwhile the railroads are still getting this counsel as part of the complete service on Arch Brick that is rendered by American Arch Company.

There's More to* SECURITY ARCHES *Than Just Brick

NRA MEMBER U.S. WE DO OUR PART

AMERICAN ARCH COMPANY
INCORPORATED

Locomotive Combustion Specialists

NEW YORK **CHICAGO**

land divisions, with headquarters at Conneaut, Ohio, succeeding **C. E. Maxfield,** who has retired from active service because of ill health after more than 46 years of service with the Nickel Plate. **C. Druckemiller,** trainmaster at Delphos, Ohio, has been advanced to assistant superintendent at Buffalo to replace Mr. Peffer. **R. D. Maloney** has been appointed trainmaster at Delphos to succeed Mr. Druckemiller.

TRAFFIC

Harvey Allen, general freight agent on the Missouri-Kansas-Texas, at Dallas, Tex., has been promoted to the newly-created position of assistant freight traffic manager, with the same headquarters.

F. C. Hogue, general agent for the Denver & Rio Grande Western at Detroit, Mich., has been promoted to assistant traffic manager at Chicago, succeeding **J. L. Hohl,** deceased.

Thomas E. Sands, who has retired as general freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, as noted in the *Railway Age* of January 6, has a record of more than 47 years of continuous railroad service. Mr. Sands was born on January 1, 1869, at Albany, N. Y., and entered railway service on

Thomas E. Sands

June 25, 1886, with the Chicago, St. Paul, Minneapolis & Omaha. Two years later Mr. Sands became connected with the Soo Line, serving successively until April 15, 1909, as traveling freight agent, chief clerk in the freight traffic department and assistant general freight agent. On that date he was promoted to general freight agent, with headquarters at Minneapolis, Minn., being further advanced to freight traffic manager on April 1, 1916. On April 2, 1928, he was made general freight traffic manager which position he held until his retirement.

OBITUARY

William A. Hopkins, who was general purchasing agent of the Missouri Pacific Lines until his appointment as consulting purchasing agent on September 1, 1933, died at the Missouri Pacific Hospital at St. Louis, Mo., on January 7, following a stroke of apoplexy. A biographical sketch together with a photograph of Mr. Hopkins was presented in the *Railway Age* of September 9, 1933.

James R. Pitcher, president and general manager of the Silverton Northern, died at his home at Pasadena, Cal., on December 27.

Raymond V. Reamer, division superintendent of the Central of New Jersey, with headquarters at Jersey City, N. J., died suddenly at his home in Roselle, N. J., on January 6, Mr. Reamer was born on November 10, 1881, at Lockport, N. Y. He entered railway service in 1901, serving consecutively to 1906 as chainman for the New York Central & Hudson River and as rodman for the same road. He entered the service of the Central of New Jersey in March, 1906, as transitman and in August, 1909, he was appointed assistant supervisor. In 1914, Mr. Reamer was promoted to the position of engineer, maintenance of way, for the same road and in 1926 he was appointed division superintendent, in which capacity he served until his death.

John Ball, assistant general purchasing agent of the Chicago & North Western, with headquarters at Chicago, died on January 10 of an intestinal ailment. Mr. Ball had been in the service of the North Western continuously for nearly 32 years. He was born on November 23, 1871, at Manchester, England, and was educated at a private school in England and at a business college at Clinton, Iowa. He entered railway service on April 20, 1902, as a stenographer on the North Western, serving in this capacity until August 1, 1905, when he was placed in charge of stationery and dining car supplies. In November, 1908, Mr. Ball became a buyer of general supplies and in January, 1911, he was promoted to assistant purchasing agent. In August, 1929, he was made assistant general purchasing agent, which position he held until his death.

Camilo E. Pani, executive vice-president and chief of the personnel department of the National Railways of Mexico, at Mexico, D. F., who died on December 4, was born on November 2, 1868, at Aguascalientes, Aguas. He was educated in various schools in Mexico, finishing his studies at the Sheffield Scientific School of Yale University in 1887. He entered the service of the National of Mexico on January 1, 1889, as a draftsman in the engineer's office at Aguascalientes, being promoted to chief draftsman in the engineer's office at San Luis Potosi, S. L. P., in June of the same year. From March, 1890, to June, 1910, he was engaged in various phases of railway location, construction and maintenance. At the end of this period he was promoted to supervising engineer of the system, which position he held until April, 1914, when he was further advanced to general manager, with headquarters at Guadalajara, Jal. In August, 1920, Mr. Pani returned to the engineering department as assistant chief engineer, with headquarters at Mexico, D. F., and in October of the following year he was appointed sub-chief engineer. Four years later he was appointed a member of the personnel commission and on September 1, 1925, he

Camilo E. Pani

was advanced to chief of the personnel department. In 1932, Mr. Pani was elected executive vice-president, holding this position as well as that of chief of the personnel department until his death. From 1920 to 1924 he served also as a Mexican Senator.

A. M. Frazee, electrical engineer, Duluth, Missabe & Northern, and president of the Association of Railway Electrical Engineers, died suddenly at his home in Duluth, Minn., on December 15, 1933, at the age of 62. Mr. Frazee has been electrical engineer of the D. M. & N. since October 1, 1912. He was born in Sauk Rapids, Minn., on October 1, 1871. He attended the University of Minnesota, in

A. M. Frazee

the class of 1894. Prior to his connection with the D. M. & N., Mr. Frazee, from 1906 to 1912, was superintendent of electrical construction, for the National Railway Construction Company, on the building of the Great Northern Power Company's hydro-electric plant for Duluth. At the time of his death, he was president of the A. R. E. E., past president of the Duluth Engineers Club, and a member of the American Institute of Electrical Engineers.

Tables of Revenues and Expenses of Railways begin on next left-hand page

What Price

An Engine Failure?

EVERY PURCHASING AGENT KNOWS
THE PRICE OF MATERIAL

EVERY MOTIVE POWER OFFICER
KNOWS THE COST OF LABOR

BUT WHO KNOWS THE COST OF AN ENGINE FAILURE?

ACCEPT NO EXCUSE for an engine failure caused by superheater trouble. But don't blame the roundhouse — they can't help it. . . . *Maintaining the superheater is NOT a roundhouse job.*

Locomotives with new or remanufactured superheater units, properly applied, will run from shopping to shopping without superheater failure or maintenance expense.

The life of superheater units is as long as that of the firebox . . . . but no longer.

Attempting to run them longer, without remanufacturing, multiplies roundhouse upkeep expense, AND . . . . LEADS TO ENGINE FAILURES.

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Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Akron, Canton & Youngstown	Nov.	171	$103,264	$31	$112,178	$15,211	$15,248	$7,096	$36,371	$8,022	$81,948	73.1	$30,230	$33,910	$21,227	$6,913
	11 mos.	171	1,386,973	253	1,468,826	183,053	163,208	83,591	423,478	93,401	939,936	64.0	528,890	428,445	294,932	210,056
Alton	Nov.	975	750,215	145,211	1,073,969	91,904	142,628	39,826	416,925	37,144	738,574	68.8	335,395	244,210	82,812	19,203
	11 mos.	978	8,994,141	1,803,895	12,366,113	1,400,894	1,441,569	501,875	4,602,600	448,233	8,517,205	68.9	3,848,908	2,929,582	1,501,148	451,333
Alton & Southern	Nov.	31	.....	.....	89,418	4,841	6,051	5,786	28,448	3,877	49,003	54.80	40,415	31,145	27,383	12,685
	11 mos.	31	.....	.....	951,728	74,834	72,085	57,545	298,671	44,505	547,640	57.54	404,088	306,488	258,420	211,687
Atchison, Topeka & Santa Fe	Nov.	9,683	7,393,993	770,375	8,910,477	942,593	2,022,091	314,629	2,843,438	359,152	6,467,374	72.6	2,443,103	1,695,739	1,812,688	2,187,726
	11 mos.	9,722	72,666,706	10,560,180	91,047,575	11,545,270	21,330,508	3,346,191	30,867,292	4,032,179	71,078,587	78.1	19,968,988	10,686,919	11,833,689	15,301,312
Gulf, Colorado & Santa Fe	Nov.	1,927	1,084,702	35,145	1,199,285	166,621	230,626	48,817	380,908	66,994	893,874	74.5	305,411	242,059	168,600	596,847
	11 mos.	1,950	10,390,940	466,672	11,619,020	1,902,136	2,625,389	538,822	4,149,433	704,502	9,907,585	85.3	1,711,435	790,685	—171,754	939,951
Panhandle & Santa Fe	Nov.	1,878	817,489	24,644	891,221	75,817	159,005	18,640	226,047	32,294	511,720	57.4	379,501	329,942	249,756	198,176
	11 mos.	1,878	7,115,780	259,118	7,885,714	1,001,439	1,586,954	196,627	2,239,980	340,120	5,365,014	68.0	2,520,700	2,039,009	1,229,680	194,260
Atlanta & West Point	Nov.	93	72,198	15,261	105,230	19,892	23,266	7,135	48,954	6,505	107,837	102.5	—2,607	—9,542	—23,965	—40,070
	11 mos.	93	849,429	155,479	1,176,267	218,199	253,291	74,709	514,655	73,409	1,156,062	98.3	20,205	—59,347	—208,895	—305,036
Western of Alabama	Nov.	133	74,817	16,426	104,139	20,296	27,225	7,051	42,214	6,278	104,783	100.6	—644	—13,983	—8,372	—20,642
	11 mos.	133	850,021	165,510	1,136,702	240,724	311,579	74,705	450,868	72,409	1,167,979	102.7	—31,277	—130,701	—89,031	—174,880
Atlanta, Birmingham & Coast	Nov.	639	174,339	5,181	206,595	33,342	39,717	19,647	88,805	13,799	204,550	99.0	2,045	—8,243	—19,470	—67,948
	11 mos.	639	2,030,496	49,560	2,382,999	420,374	482,770	210,037	977,897	161,210	2,363,886	99.1	19,113	—126,313	—234,655	—810,785
Atlantic Coast Line	Nov.	5,144	2,320,702	269,880	2,901,772	320,035	686,898	111,903	1,145,404	117,700	2,397,799	82.6	503,973	378,251	382,501	76,504
	11 mos.	5,144	27,177,321	3,867,692	34,649,999	4,261,807	7,044,425	1,184,607	12,558,379	1,382,287	26,652,137	76.9	7,997,862	4,485,810	3,736,899	—437,833
Charleston & Western Carolina	Nov.	342	141,338	929	147,115	23,938	25,006	5,866	50,274	4,735	109,819	74.6	37,296	25,294	25,840	16,355
	11 mos.	342	1,677,854	13,183	1,737,930	247,229	237,619	61,287	554,079	53,507	1,153,721	66.4	584,209	396,406	394,600	148,400
Baltimore & Ohio	Nov.	6,403	9,663,465	745,876	11,183,325	1,174,630	2,419,505	367,457	3,972,211	548,963	8,566,604	76.6	2,616,721	1,895,065	1,539,349	1,602,913
	11 mos.	6,403	104,929,330	8,948,052	121,750,319	10,143,233	21,807,806	3,734,343	39,965,043	6,002,515	82,644,993	67.9	39,105,326	31,402,275	27,222,678	20,131,811
Baltimore & Ohio Chicago Term	Nov.	84	.....	.....	248,879	21,979	46,001	2,009	137,170	11,205	223,920	90.0	24,959	—15,945	52,553	102,544
	11 mos.	84	.....	.....	2,844,433	208,163	444,283	16,440	1,487,734	133,708	2,347,933	82.5	496,500	72,363	964,635	992,268
Staten Island Rapid Transit	Nov.	23	52,795	78,253	138,058	6,071	16,159	1,668	77,975	12,912	114,785	83.1	23,273	7,923	—9,460	—622
	11 mos.	23	556,967	927,558	1,567,284	83,984	143,197	18,232	833,968	135,208	1,214,589	77.5	352,695	195,220	20,912	—98
Bangor & Aroostook	Nov.	603	448,352	16,624	483,227	39,537	88,571	4,790	105,641	25,037	264,155	54.7	219,072	169,791	155,576	107,895
	11 mos.	611	4,910,393	174,573	5,294,440	843,925	917,602	48,243	1,154,249	256,002	3,227,400	61.0	2,067,040	1,565,793	1,557,063	1,347,117
Belt Railway Company of Chicago	Nov.	54	.....	.....	346,857	16,834	34,877	2,458	151,130	8,316	213,615	61.6	133,242	83,327	138,777	145,925
	11 mos.	54	.....	.....	3,718,516	249,171	342,583	27,058	1,592,982	97,267	2,309,061	62.1	1,409,455	926,017	1,536,783	1,226,497
Bessemer & Lake Erie	Nov.	225	511,989	743	521,597	59,601	213,580	10,961	132,424	33,607	450,146	86.3	71,451	51,816	54,623	—57,139
	11 mos.	225	6,271,803	8,139	6,379,218	643,559	2,034,725	115,889	1,270,058	357,861	4,421,605	69.3	1,957,613	1,719,575	1,745,576	—907,255
Boston & Maine	Nov.	2,081	2,453,935	470,947	3,433,945	386,640	594,308	56,580	1,378,073	166,107	2,590,577	75.4	843,368	652,970	456,086	419,890
	11 mos.	2,081	26,840,612	5,955,101	38,505,925	4,540,981	5,953,165	643,928	14,690,705	1,851,348	27,762,144	72.1	10,743,781	8,336,099	6,649,105	6,605,434
Brooklyn Eastern District Terminal	Nov.	11	67,100	.....	68,372	4,718	7,209	253	23,705	5,509	41,394	60.5	26,978	20,778	20,778	10,049
	11 mos.	11	843,889	.....	858,421	54,024	95,878	2,976	254,330	66,319	473,527	55.1	384,894	317,395	318,035	247,797
Burlington-Rock Island	Nov.	280	104,530	609	109,513	11,629	11,593	3,692	46,470	6,979	80,359	73.4	29,154	24,141	10,913	35,619
	11 mos.	280	819,282	11,324	875,435	111,512	109,721	34,341	404,931	78,023	738,159	84.3	137,276	84,027	—30,885	—96,456
Cambria & Indiana	Nov.	37	92,264	.....	92,520	6,056	36,860	383	11,364	7,268	61,931	66.94	30,589	15,083	81,336	91,808
	11 mos.	37	1,086,041	.....	1,088,302	94,465	425,838	4,163	129,323	85,554	739,348	67.93	348,954	176,296	861,469	739,047
Canadian Pacific Lines in Maine	Nov.	233	79,097	12,281	100,969	18,231	18,587	4,015	47,086	3,389	91,308	90.4	9,661	4,661	—8,628	—45,275
	11 mos.	233	1,139,648	159,726	1,408,364	300,310	268,770	46,620	584,797	40,660	1,241,152	88.1	167,212	93,201	—109,548	—373,865
Canadian Pacific Lines in Vermont	Nov.	85	53,550	8,071	73,197	9,327	13,988	1,770	48,931	2,251	76,267	104.2	—3,070	—7,270	—21,863	—50,922
	11 mos.	85	557,713	116,096	830,555	174,367	182,159	20,940	541,207	27,443	946,116	113.9	—115,561	—173,464	—357,998	—405,686
Central of Georgia	Nov.	1,944	779,616	72,993	964,311	103,561	250,617	48,317	406,567	67,443	879,420	91.2	84,891	29,894	1,491	—7,997
	11 mos.	1,944	9,120,149	906,382	11,206,593	1,320,215	2,429,221	527,048	4,453,045	741,195	9,506,971	84.8	1,699,622	908,089	602,224	—203,246
Central of New Jersey	Nov.	691	1,762,344	329,979	2,259,224	138,534	388,113	46,680	922,139	92,900	1,599,805	70.8	659,419	263,596	169,656	267,879
	11 mos.	691	19,309,053	4,073,383	25,062,142	1,697,964	4,525,750	467,072	10,011,590	1,007,195	17,841,570	71.2	7,220,572	3,123,816	2,215,982	2,373,783
Central Vermont	Nov.	457	342,319	27,460	411,245	49,566	89,253	13,548	182,783	20,048	355,160	86.4	56,085	39,848	22,892	—10,561
	11 mos.	457	3,738,515	391,491	4,608,088	747,405	904,504	153,106	2,004,711	220,481	4,030,603	87.5	577,485	403,452	301,839	148,329
Chesapeake & Ohio	Nov.	3,131	8,208,079	195,805	8,801,222	791,864	1,549,528	156,443	2,016,091	258,674	4,781,492	54.3	4,019,730	3,481,052	3,371,060	2,872,375
	11 mos.	3,146	92,301,925	2,298,082	98,301,283	10,471,011	17,143,950	1,792,361	21,255,244	3,037,545	53,825,787	54.8	44,475,496	35,261,759	34,234,856	29,727,507
Chicago & Eastern Illinois	Nov.	938	858,608	90,757	1,058,122	124,624	181,266	46,514	424,307	57,184	840,118	79.4	218,004	157,929	22,986	—66,876
	11 mos.	938	8,863,351	1,203,778	11,179,657	1,381,581	1,611,170	536,840	4,624,569	597,897	8,823,260	78.9	2,356,397	1,492,784	119,444	—1,218,376

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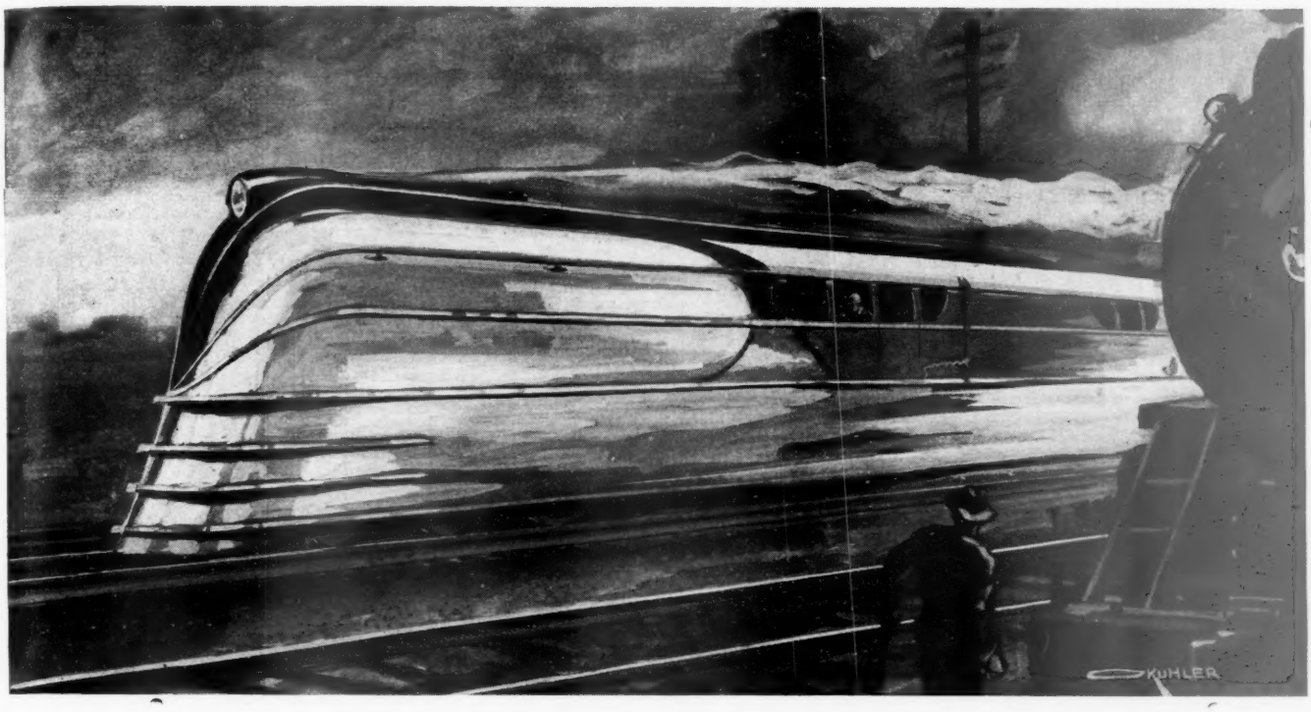

SOME PEOPLE, MANY OF WHOM ARE VERY WELL INFORMED, believe that higher speed, combined with air-conditioning, will bring about a return of passenger traffic to our trains.

Assuming that these gentlemen are right, does not the question then become how high a speed can be obtained on existing tracks without disrupting fast freight service (in many cases the main meal ticket of the railroad) and how much will it cost?

According to the latest figures available there are approximately 9,300 Pullmans, and 52,000 passenger cars in existence on our railroads today.

Now common sense tells us that the amount of money involved alone prohibits the scrapping of all this equipment in the near future.

If it is true that it is only a question of handling from 100 to 150 passengers in a day-time train, we have a suggestion that we think has merit.

Why not air-condition and partially streamline some of the present cars, and then put at the head-end a modern light-weight steam locomotive? Give it stream-lining, a larger diameter driving wheel, high pressure and high superheat. We think it would go places with only the necessary cars for 100 to 150 passengers.

In fact, we put this proposition up to one prominent railroad man for his opinion and he answered, "Why, it would run like a sewing machine".

And incidentally, such a steam unit would be available for use with light weight fully stream-lined cars, if later on, such equipment should come into general use.

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We are prepared to submit streamlined designs, steam or diesel powered as desired, to meet any or every demand of our railroads.

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Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Chicago & Illinois Midland	Nov.	131	$236,090	$920	$244,600	$17,188	$36,445	$17,981	$62,184	$15,617	$149,415	61.1	$95,185	$87,589	$92,288	$59,312
	11 mos.	131	2,647,094	10,973	2,739,766	283,869	479,499	172,135	653,550	169,818	1,761,257	64.3	978,509	837,978	878,733	165,331
Chicago & North Western	Nov.	8,424	4,413,806	657,640	5,751,899	711,441	1,203,507	151,463	2,340,856	262,655	4,690,101	81.5	1,061,798	486,479	294,804	—160,539
	11 mos.	8,441	52,330,838	8,390,296	68,060,435	8,969,930	13,570,339	1,717,457	25,839,035	2,911,853	53,307,471	78.3	14,752,964	8,330,420	5,848,345	1,048,255
Chicago, Burlington & Quincy	Nov.	9,184	5,968,376	505,000	7,221,314	834,188	1,070,662	196,417	2,354,239	274,392	4,782,436	66.2	2,438,878	1,840,028	1,477,669	646,596
	11 mos.	9,242	58,422,618	6,213,114	72,270,001	7,737,687	10,971,366	2,255,786	24,989,841	3,110,801	49,539,689	68.5	22,730,312	15,652,607	12,236,789	8,950,722
Chicago Great Western	Nov.	1,499	1,115,562	32,302	1,229,946	114,904	163,339	49,723	468,598	45,767	835,213	67.9	394,733	358,180	151,838	—85,062
	11 mos.	1,499	12,099,182	490,720	13,440,241	1,764,995	1,828,161	547,091	4,997,643	520,757	9,645,805	71.8	3,794,436	3,134,796	1,013,097	439,792
Chicago, Indianapolis & Louisville	Nov.	647	501,053	45,347	618,352	40,998	138,607	24,559	250,259	21,384	481,066	77.8	137,286	101,538	7,456	35,299
	11 mos.	647	5,274,714	587,672	6,653,134	567,859	1,485,607	250,513	2,738,237	237,895	5,329,225	80.1	1,323,909	930,635	—58,894	—212,782
Chicago, Mil., St. Paul & Pacific	Nov.	11,203	5,702,975	386,551	6,784,484	703,236	1,462,027	217,038	2,595,401	243,203	5,250,712	77.4	1,533,772	1,075,113	644,297	129,884
	11 mos.	11,228	66,523,401	5,250,574	79,238,051	9,537,013	15,787,443	2,236,600	28,715,456	2,780,349	59,381,928	74.9	19,856,123	13,222,739	8,317,415	—805,591
Chicago River & Indiana	Nov.	20	.....	.....	381,761	15,000	35,000	1,486	116,294	11,051	178,831	46.8	202,930	174,345	226,653	224,428
	11 mos.	20	.....	.....	4,161,676	169,500	256,000	16,420	1,261,516	112,438	1,815,874	43.6	2,345,802	2,055,192	2,675,194	2,357,831
Chicago, Rock Island & Pacific	Nov.	7,611	3,980,755	414,838	4,898,267	553,157	1,168,878	169,834	2,081,687	266,105	4,296,494	87.7	601,773	252,845	—26,816	—193,374
	11 mos.	7,611	46,256,834	5,105,830	56,736,425	5,982,190	12,290,679	1,844,942	22,225,118	2,805,094	45,780,175	80.7	10,956,250	6,097,105	3,203,097	3,403,318
Chicago, Rock Island & Gulf	Nov.	721	343,308	22,513	336,363	32,744	41,555	14,536	104,635	19,792	215,532	64.1	120,831	98,367	30,143	28,409
	11 mos.	721	2,965,091	202,040	3,117,154	446,970	413,124	160,669	1,089,700	197,506	2,334,874	74.9	782,280	550,190	—277,904	424,954
Chicago, St. Paul, Minn. & Omaha	Nov.	1,671	936,219	86,853	1,110,091	136,000	153,247	31,474	519,618	64,355	912,491	82.2	197,600	130,154	68,443	9,737
	11 mos.	1,706	11,168,796	1,271,268	13,426,371	1,375,012	2,023,075	348,450	5,768,575	719,696	10,320,060	76.9	3,106,311	2,232,790	1,461,529	—178,886
Cincinnati Union Terminal	Nov.	45	.....	.....	4,173	5,931	7,824	.....	75,998	5,373	95,126	2,279.6	—90,953	—119,311	—116,720	.....
	7 mos.	45	.....	.....	41,011	67,208	44,425	.....	630,488	46,469	788,590	1,922.9	—747,579	—974,355	—964,047	.....
Clinchfield R. R.	Nov.	309	397,280	1,805	404,624	34,605	100,249	15,329	71,912	11,921	234,016	57.8	170,608	150,607	169,690	109,185
	11 mos.	309	4,371,730	21,204	4,444,443	379,443	1,001,666	168,174	767,795	145,219	2,462,297	55.4	1,982,146	1,481,901	1,719,960	663,355
Colorado & Southern	Nov.	1,029	566,047	18,384	632,808	56,410	96,627	12,474	185,211	32,668	383,825	60.7	248,983	199,830	186,694	97,470
	11 mos.	1,029	4,242,129	230,633	4,958,463	587,412	1,021,337	127,024	1,825,366	349,333	3,911,520	78.9	1,046,943	447,385	243,040	—74,686
Fort Worth & Denver City	Nov.	804	488,718	34,728	616,683	35,373	71,257	15,783	150,928	30,825	304,810	49.4	311,873	276,664	246,014	311,170
	11 mos.	804	4,089,285	317,121	5,105,753	339,343	732,175	168,053	1,463,781	347,145	3,062,758	60.0	2,042,995	1,705,456	1,395,499	1,470,112
Columbus & Greenville	Nov.	167	98,027	5,735	109,335	13,674	13,873	3,832	36,464	9,624	77,456	70.8	31,879	28,344	24,513	4,097
	11 mos.	167	659,573	43,469	757,981	131,603	108,609	32,781	280,498	88,740	642,230	84.7	115,751	93,452	108,350	—52,285
Conemaugh & Black Lick	Nov.	2,055	24,078	.....	43,376	8,260	7,988	608	24,228	3,448	44,532	102.7	—1,156	—1,186	285	—4,237
	11 mos.	2,055	368,017	.....	635,726	69,970	103,749	4,119	272,001	31,970	481,809	75.8	153,917	151,157	166,007	—56,799
Delaware & Hudson	Nov.	848	1,796,912	76,487	1,967,197	260,900	511,526	47,219	753,491	135,460	1,696,277	86.2	270,920	199,687	210,068	—43,319
	11 mos.	850	18,072,815	1,012,469	20,294,977	2,974,441	5,448,162	549,534	8,101,776	1,490,552	18,577,117	91.5	1,717,860	837,507	882,152	—15,395
Delaware, Lackawanna & Western	Nov.	998	2,674,198	520,407	3,650,522	264,471	761,647	104,519	1,659,824	149,426	2,965,005	81.2	685,517	384,593	347,879	277,894
	11 mos.	998	28,624,465	5,875,955	39,734,961	3,503,895	7,988,396	1,185,990	17,070,038	1,658,774	31,717,479	79.8	8,017,482	3,520,622	3,195,629	3,576,849
Denver & Rio Grande Western	Nov.	2,471	1,594,957	64,071	1,737,817	104,035	258,912	45,113	532,664	70,433	1,014,995	58.4	722,822	557,707	518,065	443,082
	11 mos.	2,499	13,879,682	826,606	15,614,085	1,564,855	3,177,629	476,179	4,881,601	785,305	10,925,025	70.0	4,689,060	3,088,806	2,996,925	2,439,210
Denver & Salt Lake	Nov.	232	139,915	2,553	150,337	16,583	25,242	1,589	23,408	11,175	77,277	51.4	73,060	63,060	65,713	87,487
	11 mos.	232	1,349,574	43,613	1,522,361	203,710	254,549	16,816	276,470	125,802	835,821	54.9	686,540	541,238	648,267	675,131
Detroit & Mackinac	Nov.	242	43,732	2,743	52,767	6,531	6,168	935	19,959	3,700	37,289	70.7	15,478	10,915	9,986	6,305
	11 mos.	242	461,430	26,288	559,708	108,879	82,305	10,582	228,257	41,134	470,632	84.1	89,076	50,972	47,934	107,769
Detroit & Toledo Shore Line	Nov.	50	200,160	.....	201,527	22,288	19,449	6,611	57,411	6,322	112,073	55.6	89,454	66,496	26,792	61,521
	11 mos.	50	2,306,955	.....	2,323,071	212,899	221,533	72,916	600,999	73,775	1,182,026	50.9	1,141,045	907,259	465,645	294,101
Detroit Terminal	Nov.	19	.....	.....	37,593	6,581	7,171	.....	17,762	2,536	34,050	90.6	3,543	—3,720	—5,026	2,194
	11 mos.	19	.....	.....	600,406	58,998	82,112	10	306,027	28,127	475,274	79.2	125,132	8,470	4,490	—102,113
Detroit, Toledo & Ironton	Nov.	472	275,960	188	289,734	33,221	43,339	10,447	94,003	16,743	196,883	68.0	92,851	62,846	48,550	24,010
	11 mos.	472	3,503,238	3,180	3,647,105	353,152	587,649	104,289	996,263	190,554	2,214,691	60.7	1,432,414	1,090,054	945,376	417,681
Duluth, Missabe & Northern	Nov.	563	61,675	3,548	81,789	87,490	203,914	2,938	116,266	37,381	447,989	547.7	—366,200	—310,528	—308,989	—311,287
	11 mos.	563	8,499,720	25,047	9,621,527	1,052,731	1,596,951	32,753	1,938,923	434,730	5,055,806	52.5	4,565,721	3,976,630	3,982,729	—2,191,009
Duluth, Winnipeg & Pacific	Nov.	178	64,732	1,601	70,185	14,566	6,639	2,220	33,805	4,121	61,263	87.3	8,922	5,390	15,242	—3,174
	11 mos.	178	698,064	21,842	753,234	194,980	178,216	25,183	364,903	49,053	811,635	107.8	—58,401	—98,032	67,779	—43,707
Elgin, Joliet & Eastern	Nov.	446	711,673	1	768,751	85,869	217,483	12,726	316,109	41,575	673,667	87.6	95,084	103,536	71,077	—54,316
	11 mos.	446	8,312,562	14	9,252,118	904,207	2,066,328	128,752	3,363,375	468,812	6,930,990	74.9	2,321,128	1,272,707	821,490	—957,101
Erie	Nov.	2,046	4,334,836	393,723	5,104,704	322,911	1,134,626	130,198	1,964,076	244,275	3,795,680	74.4	1,309,024	1,246,926	1,099,455	630,968
	11 mos.	2,046	48,923,916	4,705,465	58,235,343	5,205,840	12,412,199	1,449,875	20,905,624	2,583,284	42,631,543	73.2	15,603,800	12,112,912	10,856,971	7,873,155

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CENTRAL ALLOY DIVISION, MASSILLON, OHIO

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

AGATHON NICKEL IRON

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Chicago & Erie	Nov.	269	$674,749	$18,511	$742,351	$70,268	$94,300	$22,622	$202,914	$32,909	$421,316	56.8	$321,035	$292,106	$36,215	$11,446
	11 mos.	269	7,405,847	305,900	8,261,347	857,612	1,022,130	247,157	2,142,556	358,854	4,619,789	55.9	3,641,558	3,254,089	906,700	114,992
New Jersey & New York	Nov.	45	13,965	55,326	70,896	4,665	22,306	1,394	51,890	4,781	85,036	119.9	—14,140	—13,940	—30,964	—20,543
	11 mos.	45	178,385	663,954	864,954	86,781	261,607	15,299	521,408	41,276	926,359	107.1	—61,405	—111,276	—309,509	—223,527
N. Y., Susquehanna & Western	Nov.	131	192,455	23,943	235,291	14,918	54,233	4,316	104,421	11,755	189,639	80.6	45,652	58,366	47,721	35,015
	11 mos.	131	2,452,947	292,235	2,902,177	293,048	559,682	47,559	1,144,162	119,989	2,164,417	74.6	737,760	448,051	305,973	391,450
Florida East Coast	Nov.	839	368,082	71,070	498,592	123,684	136,492	18,625	154,526	51,317	482,905	96.9	15,687	—60,323	—82,198	—14,667
	11 mos.	839	4,037,331	1,284,735	6,039,087	1,167,482	1,419,456	212,606	1,747,020	451,650	5,035,401	83.4	1,003,686	173,530	—218,693	—373,762
Fort Smith & Western	Nov.	249	59,298	1,108	64,083	13,755	9,870	4,489	20,269	4,253	52,783	82.4	11,300	9,097	4,001	4,402
	11 mos.	249	556,544	10,812	608,615	141,250	102,986	48,174	203,003	44,940	541,990	89.1	66,625	41,396	—7,490	—55,713
Galveston Wharf	Nov.	11	.....	.....	106,475	26,753	3,483	3,900	20,504	4,530	62,361	58.6	44,114	25,166	25,486	43,580
	11 mos.	11	.....	.....	1,029,949	319,262	36,710	35,919	221,955	56,891	711,548	69.1	318,401	107,138	107,812	274,448
Georgia Railroad	Nov.	329	226,103	11,422	260,473	29,080	60,958	16,136	106,372	12,090	224,905	86.3	35,568	30,765	44,422	7,725
	11 mos.	329	2,447,054	141,618	2,796,957	316,295	529,182	177,593	1,175,740	134,523	2,335,923	83.5	461,034	402,482	513,707	237,676
Georgia & Florida	Nov.	465	69,064	1,467	76,438	18,084	16,637	7,295	31,237	5,365	78,729	103.0	—2,291	—8,295	—8,129	—21,948
	11 mos.	464	835,205	16,411	903,364	186,526	166,276	86,174	347,658	65,380	853,139	94.4	50,225	—7,024	—11,808	—203,066
Grand Trunk Western	Nov.	1,008	962,933	78,655	1,127,608	178,536	252,560	34,245	567,738	77,449	1,112,329	98.6	15,279	—25,027	—148,947	—214,597
	11 mos.	1,005	12,141,943	679,462	13,828,468	2,272,495	3,086,080	388,444	6,077,274	847,031	12,702,620	91.9	1,125,848	315,583	—839,517	—1,990,991
Canadian Nat'l Lines in New Eng.	Nov.	172	55,218	3,089	66,207	16,244	14,364	2,862	56,224	8,679	98,777	149.2	—32,570	—43,770	—78,488	—70,855
	11 mos.	172	776,550	77,328	960,234	231,716	190,751	32,980	578,817	96,278	1,142,868	119.0	—182,634	—324,508	—725,058	—833,927
Great Northern	Nov.	8,452	4,453,818	263,074	5,119,639	431,676	966,759	152,491	1,786,747	237,175	3,617,741	70.7	1,501,898	969,691	832,180	766,838
	11 mos.	8,452	49,131,408	3,429,444	57,496,718	5,074,480	10,187,628	1,701,818	18,603,014	2,247,894	38,274,313	66.6	19,222,405	12,839,212	10,980,190	867,898
Green Bay & Western	Nov.	234	80,192	1,121	85,243	27,497	13,511	5,094	30,082	2,848	78,918	92.5	6,325	1,280	440	29,200
	11 mos.	234	963,859	10,308	1,012,919	231,344	149,770	49,071	414,616	28,272	872,644	86.1	140,275	80,467	65,981	60,294
Gulf & Ship Island	Nov.	307	70,666	2,472	80,613	15,506	18,377	1,884	41,248	4,115	81,129	100.6	—516	—6,035	—16,404	—28,748
	11 mos.	307	817,005	56,075	979,436	140,701	183,985	21,583	445,639	46,014	839,248	85.7	140,188	—41,809	—156,076	—255,616
Gulf, Mobile & Northern	Nov.	963	367,556	19,425	406,014	46,260	62,936	32,525	134,076	21,684	297,481	73.27	108,533	77,537	30,400	26,383
	11 mos.	835	3,488,487	134,368	3,798,981	429,895	548,907	267,087	1,141,138	194,997	2,582,024	67.97	1,216,957	936,721	598,204	—25,793
Illinois Central	Nov.	5,011	4,980,783	614,850	6,077,324	423,984	1,292,097	137,130	2,323,571	314,345	4,519,328	74.4	1,557,996	1,229,202	1,121,299	939,657
	11 mos.	5,014	55,781,816	7,771,417	69,331,290	5,603,728	13,998,927	1,603,270	24,834,654	3,260,335	49,644,477	71.6	19,686,813	14,912,342	13,408,507	11,111,872
Yazoo & Mississippi Valley	Nov.	1,658	984,556	55,857	1,109,132	66,857	148,194	19,283	420,604	46,352	701,823	63.3	407,309	314,869	198,177	124,521
	11 mos.	1,658	9,479,789	579,831	10,812,031	827,813	1,519,195	217,517	4,209,170	471,207	7,244,857	67.0	3,567,174	2,304,244	1,138,079	231,108
Illinois Central System	Nov.	6,670	5,965,339	670,707	7,186,456	490,841	1,440,291	156,413	2,744,175	360,697	5,221,151	72.7	1,965,305	1,544,071	1,319,476	1,064,178
	11 mos.	6,672	65,261,605	8,351,248	80,143,321	6,431,541	15,518,122	1,820,787	29,043,824	3,731,542	56,889,334	71.0	23,253,987	17,216,586	14,546,586	11,342,980
Illinois Terminal	Nov.	525	331,274	48,780	392,756	39,646	59,911	15,367	142,785	17,470	274,991	70.02	117,765	93,680	62,221	39,696
	11 mos.	538	3,683,673	527,555	4,360,738	528,625	545,565	156,615	1,537,696	182,332	2,943,476	67.50	1,417,262	1,139,580	796,508	543,560
Kansas City Southern	Nov.	783	536,529	12,431	639,054	69,090	144,533	40,671	195,379	59,147	509,764	79.8	129,290	80,877	74,576	77,017
	11 mos.	783	6,623,804	160,497	7,749,676	776,673	1,417,676	437,163	2,363,927	656,068	5,658,683	73.0	2,090,993	1,280,019	1,076,362	892,220
Texarkana & Fort Smith	Nov.	98	80,143	913	94,996	8,412	8,661	5,526	27,115	7,532	57,597	60.6	37,399	29,382	11,186	9,509
	11 mos.	98	775,000	12,292	931,549	94,125	85,803	60,891	274,592	90,109	612,737	65.8	318,812	234,146	38,790	26,758
Kansas, Oklahoma & Gulf	Nov.	326	132,350	375	135,497	28,111	16,118	6,747	36,407	7,865	94,388	69.7	41,109	19,500	1,573	46,267
	11 mos.	326	1,616,081	3,393	1,648,665	211,783	127,086	74,617	381,389	84,294	872,219	52.9	776,446	584,917	419,821	383,308
Lake Superior & Ishpeming	Nov.	160	111,373	107	128,580	22,655	18,283	526	33,929	5,990	81,383	63.3	47,197	29,989	29,186	—18,865
	11 mos.	160	1,597,137	860	1,839,510	242,011	159,221	5,902	315,857	61,164	784,133	42.6	1,055,377	799,206	788,348	—304,036
Lake Terminal	Nov.	12	.....	.....	27,117	4,238	4,827	.....	16,075	2,710	27,850	102.7	—733	—2,113	—3,930	—682
	11 mos.	12	.....	.....	580,671	47,985	56,618	.....	221,340	28,656	354,599	61.1	226,072	191,332	195,096	65,458
Lehigh & Hudson River	Nov.	96	112,843	125	118,581	14,928	19,256	2,961	39,842	6,614	83,601	70.5	34,980	24,454	13,152	14,969
	11 mos.	96	1,251,086	2,775	1,327,809	140,652	209,204	35,328	437,355	69,868	892,397	67.2	435,412	311,844	175,865	128,671
Lehigh & New England	Nov.	228	259,545	443	261,955	30,056	63,497	5,212	92,314	14,697	205,768	78.6	56,187	45,094	55,731	68,775
	11 mos.	228	2,754,984	4,731	2,784,414	331,157	584,836	53,798	979,023	170,120	2,118,897	76.1	665,517	548,372	626,403	710,891
Lehigh Valley	Nov.	1,354	2,754,443	181,101	3,188,790	215,901	757,891	102,115	1,417,956	116,023	2,622,407	82.2	566,383	437,343	283,921	341,160
	11 mos.	1,359	30,137,078	2,156,368	34,997,599	2,761,479	7,427,907	1,161,546	14,734,041	1,332,782	27,593,764	78.8	7,403,835	5,182,155	3,816,507	2,680,523
Louisiana & Arkansas	Nov.	608	314,723	10,022	343,549	46,085	68,562	21,450	87,433	16,115	239,964	69.8	103,585	75,851	64,278	67,435
	11 mos.	608	3,445,014	98,087	3,794,864	515,545	659,225	221,042	898,825	187,608	2,480,561	65.4	1,314,303	1,004,770	851,070	721,864
Louisiana, Arkansas & Texas	Nov.	255	72,664	226	79,057	17,139	5,947	4,065	25,038	4,865	57,054	72.2	22,003	19,504	8,649	15,848
	11 mos.	255	704,114	3,012	775,444	188,422	84,674	41,499	265,975	51,467	631,919	81.5	143,525	117,263	—4,555	—11,246

Revenues and Expenses of Railways

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
Louisville & Nashville	Nov.	5,116	$4,689,594	$400,367	$5,483,276	$651,269	$1,349,159	$167,885	$1,963,881	$250,708	$4,414,099	80.5	$1,069,177	$789,730	$821,129	$1,285,706
	11 mos.	5,139	51,978,971	4,105,632	60,535,710	6,698,236	13,325,393	1,827,309	21,198,210	2,843,120	46,229,311	76.4	14,306,399	10,362,435	10,764,976	6,284,462
Maine Central	Nov.	1,046	733,009	56,949	874,536	88,825	160,259	10,564	318,123	37,301	619,030	70.7	255,506	212,109	147,907	125,018
	11 mos.	1,090	7,890,670	813,859	9,697,195	1,351,534	1,560,905	113,987	3,468,653	412,607	6,910,511	71.2	2,786,684	2,275,016	1,834,395	1,403,707
Midland Valley	Nov.	363	103,260	423	108,620	19,510	10,536	2,089	31,729	6,546	69,683	64.2	38,937	28,651	16,150	51,681
	11 mos.	363	1,215,043	4,752	1,266,438	182,465	100,076	24,742	318,129	71,486	691,383	54.6	575,055	468,140	386,515	397,854
Minneapolis & St. Louis	Nov.	1,627	567,244	11,372	617,758	73,748	130,534	20,757	316,567	32,081	573,286	92.8	44,472	17,814	—22,290	—14,112
	11 mos.	1,627	6,486,698	153,448	7,068,627	882,949	1,413,437	267,084	3,274,675	369,546	6,202,739	87.8	865,888	491,037	226,756	—360,029
Minn., St. Paul & Sault Ste. Marie	Nov.	4,304	1,359,158	79,030	1,585,678	244,073	363,094	59,631	712,305	105,672	1,488,657	93.9	97,021	—7,932	—158,126	—62,301
	11 mos.	4,321	17,678,703	1,000,762	20,344,490	2,758,693	3,829,406	668,275	7,978,458	1,209,638	16,489,501	81.1	3,854,989	2,220,273	793,560	—1,410,206
Duluth, South Shore & Atlantic	Nov.	563	125,884	8,555	149,173	22,546	39,790	4,318	69,051	4,841	140,490	94.2	8,683	—7,193	—13,112	—102,181
	11 mos.	562	1,502,922	102,605	1,778,914	316,351	348,089	56,616	727,343	62,821	1,512,585	85.0	266,329	65,101	19,876	—563,332
Spokane International	Nov.	163	32,826	1,342	38,195	5,111	4,326	1,841	18,606	3,952	33,836	88.6	4,359	2,564	—97	—11,252
	11 mos.	163	352,262	16,236	411,507	111,616	49,844	21,821	208,764	45,274	437,227	106.3	—25,720	—71,374	—95,929	—125,360
Mississippi Central	Nov.	150	46,166	1,621	49,769	8,812	10,512	6,312	16,691	4,924	47,242	94.9	2,527	—289	—2,092	—6,516
	11 mos.	150	524,985	15,075	560,671	97,628	118,486	67,107	172,470	55,776	511,461	91.2	49,210	17,853	—18,123	—57,994
Missouri & North Arkansas	Nov.	364	78,983	1,245	85,783	12,135	17,435	3,147	29,178	3,567	65,404	76.2	20,379	17,922	9,241	—9,650
	11 mos.	364	739,727	11,696	818,231	150,579	111,848	48,995	285,035	49,980	645,969	78.9	172,262	146,282	50,793	—107,301
Missouri-Illinois	Nov.	202	67,407	293	69,346	14,025	8,103	2,180	25,060	5,512	54,864	79.1	14,482	10,772	5,646	1,623
	11 mos.	202	755,166	3,871	777,721	149,734	115,029	27,474	259,212	58,758	610,077	78.4	167,644	98,164	23,879	20,313
Missouri-Kansas-Texas Lines	Nov.	3,293	2,024,304	151,484	2,399,476	228,232	339,043	149,458	760,712	143,775	1,635,520	68.2	763,956	749,801	535,401	516,381
	11 mos.	3,293	19,495,635	1,671,410	23,469,279	2,889,654	3,611,629	1,320,411	7,984,710	1,540,681	17,493,285	74.5	5,975,994	4,304,566	2,416,568	3,318,580
Missouri Pacific	Nov.	7,401	4,859,099	277,327	5,636,128	754,028	1,204,675	214,361	2,055,912	258,227	4,515,366	80.1	1,120,762	773,615	387,445	854,205
	11 mos.	7,401	53,912,427	3,404,143	62,793,558	7,812,677	12,717,011	2,296,540	22,293,626	2,785,206	48,045,383	76.5	14,748,175	10,903,750	6,770,520	8,259,296
Gulf Coast Lines	Nov.	1,784	554,127	26,061	622,526	98,094	109,513	41,096	200,680	44,230	491,526	78.96	131,000	88,986	31,990	60,048
	11 mos.	1,798	6,651,648	314,978	7,423,139	1,176,669	1,359,796	427,002	2,416,804	485,721	5,845,174	78.74	1,577,965	1,033,604	179,374	868,929
International-Great Northern	Nov.	1,159	715,084	47,482	851,534	115,791	148,392	28,701	338,657	42,473	682,960	80.20	168,574	138,544	38,796	97,494
	11 mos.	1,159	9,920,468	563,197	11,391,253	1,446,753	1,931,562	284,350	3,948,439	476,034	8,172,926	71.75	3,218,327	2,824,013	1,477,471	488,896
San Antonio, Uvalde & Gulf	Nov.	316	59,971	2,230	65,953	16,528	7,705	4,232	22,638	4,277	55,098	83.5	10,855	7,695	—9,621	—8,534
	11 mos.	316	608,718	30,017	689,854	173,990	103,176	43,866	191,448	47,158	558,372	80.9	131,482	90,586	—123,571	—100,724
Mobile & Ohio	Nov.	1,201	620,911	24,403	677,150	100,289	157,619	39,005	258,703	35,338	591,204	87.3	85,946	63,521	5,411	16,847
	11 mos.	1,217	6,854,414	233,056	7,500,078	947,215	1,698,040	422,695	2,753,840	399,324	6,223,040	83.0	1,277,038	845,422	160,704	—488,772
Monongahela	Nov.	177	301,093	759	304,810	29,311	26,422	360	68,418	3,406	127,917	42.0	176,893	142,179	70,203	110,556
	11 mos.	177	3,232,246	6,928	3,258,813	269,347	241,972	6,401	629,257	65,232	1,212,251	37.2	2,046,562	1,830,717	1,051,430	1,057,860
Monongahela Connecting	Nov.	6	.....	.....	55,168	9,967	18,847	52	33,220	2,752	64,838	117.5	—9,670	—14,594	—15,484	—20,687
	11 mos.	6	.....	.....	725,842	117,367	177,483	526	368,076	29,570	693,022	95.5	32,820	—19,975	—25,456	—191,879
Montour	Nov.	57	196,036	.....	196,347	8,711	67,042	951	37,791	5,192	119,687	61.0	76,660	70,164	74,966	86,851
	11 mos.	57	1,553,199	.....	1,563,650	131,250	494,835	12,084	311,211	65,981	1,015,361	64.9	548,289	504,792	694,252	636,691
Nashville, Chattanooga & St. Louis	Nov.	1,203	850,760	61,555	1,014,478	151,777	278,036	53,997	401,296	52,954	942,410	92.9	72,068	35,561	12,057	47,792
	11 mos.	1,203	9,628,025	695,343	11,429,338	1,585,024	2,790,546	592,592	4,288,800	589,486	9,898,606	86.6	1,530,732	1,130,984	926,791	565,637
Nevada Northern	Nov.	165	13,974	1,230	18,492	9,814	3,959	792	8,052	1,034	23,651	127.9	—5,159	—9,775	—8,313	—7,547
	11 mos.	165	196,394	12,085	249,383	96,620	41,959	7,938	77,948	32,347	256,812	103.0	—7,429	—79,559	—38,187	—25,595
Newburgh & South Shore	Nov.	6	.....	.....	18,414	3,488	13,645	.....	12,879	4,224	34,236	185.9	—15,822	—22,281	—17,862	2,430
	11 mos.	6	.....	.....	380,820	30,260	178,330	.....	199,666	48,413	456,669	119.9	—75,849	—169,564	—126,766	—146,868
New Orleans Terminal	Nov.	20	.....	.....	97,088	8,949	7,162	.....	27,124	978	44,213	45.5	52,875	41,020	44,114	64,337
	11 mos.	20	.....	.....	1,170,073	94,324	65,706	.....	293,430	11,160	464,620	39.7	705,453	577,265	499,788	478,045
New York Central	Nov.	11,414	15,661,432	4,137,771	22,812,196	2,299,222	5,292,847	513,319	8,585,871	968,574	17,961,751	78.7	4,850,445	3,255,398	1,813,159	1,665,356
	11 mos.	11,414	179,399,055	48,216,627	260,465,383	23,569,744	53,640,368	5,391,737	93,156,190	10,835,647	190,004,964	72.9	70,460,419	45,298,208	31,035,767	18,599,883
Indiana Harbor Belt	Nov.	120	.....	.....	680,696	40,000	72,000	3,077	269,370	17,964	412,380	60.6	268,316	214,802	153,158	139,935
	11 mos.	120	.....	.....	7,135,662	381,000	721,000	35,086	2,779,447	193,473	4,199,538	58.9	2,936,124	2,376,830	1,781,706	1,399,324
Pittsburgh & Lake Erie	Nov.	229	1,154,495	45,592	1,228,145	101,091	473,872	23,652	442,646	61,909	1,103,697	89.9	124,448	45,503	184,681	237,169
	11 mos.	232	12,541,212	478,138	13,458,002	1,069,812	4,544,403	261,578	4,411,715	648,668	10,948,337	81.4	2,509,665	1,497,305	2,743,108	1,480,363
New York, Chicago & St. Louis	Nov.	1,690	2,371,328	53,639	2,523,188	261,628	418,256	92,938	923,870	119,216	1,807,116	71.6	716,072	595,781	371,485	273,116
	11 mos.	1,690	26,241,885	874,865	28,188,327	2,757,849	4,282,952	1,049,668	9,653,105	1,243,844	19,008,073	67.4	9,180,254	7,614,693	4,807,175	1,872,615
New York, New Haven & Hartford	Nov.	2,067	3,294,739	1,620,787	5,642,110	640,071	992,154	75,858	2,097,799	218,351	4,133,748	73.3	1,508,362	1,121,990	657,184	775,723
	11 mos.	2,068	35,666,361	18,375,214	61,387,936	7,190,161	10,278,392	800,955	22,872,392	2,473,592	44,819,135	73.0	16,568,801	12,389,483	7,080,003	10,300,004

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933—CONTINUED

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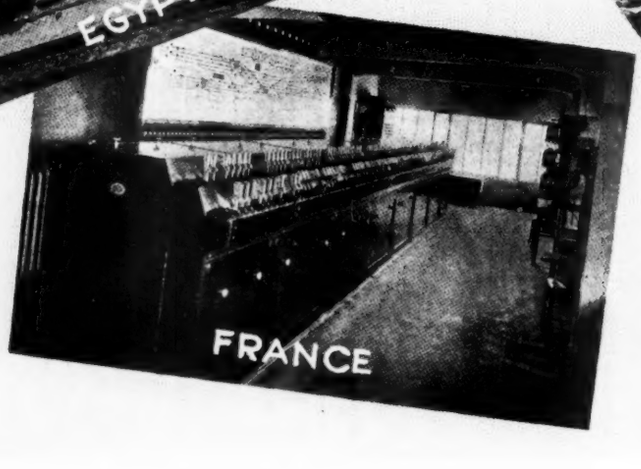
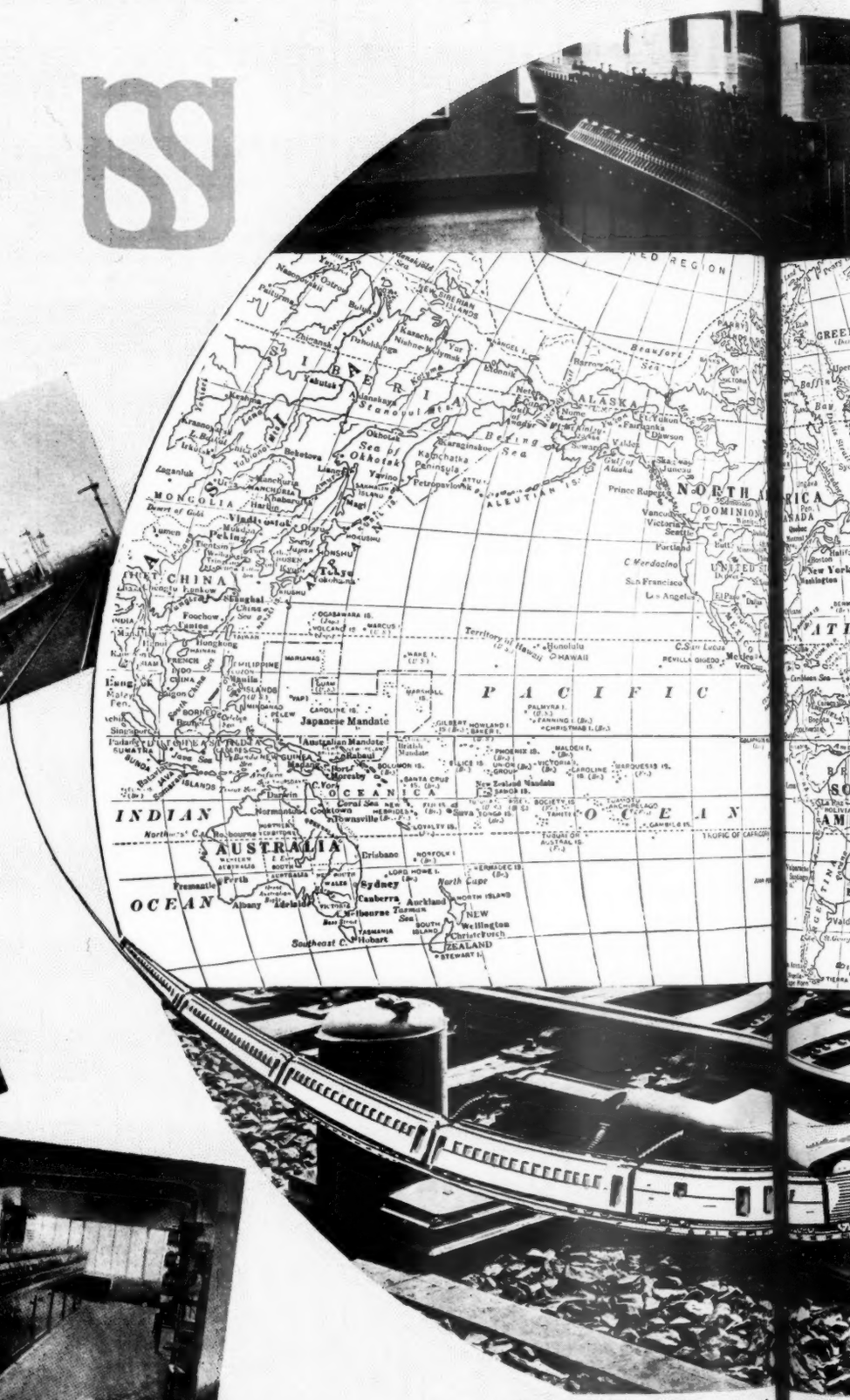
Electro-Pneumatic Inter-lo





1881 **Union Switch** & S

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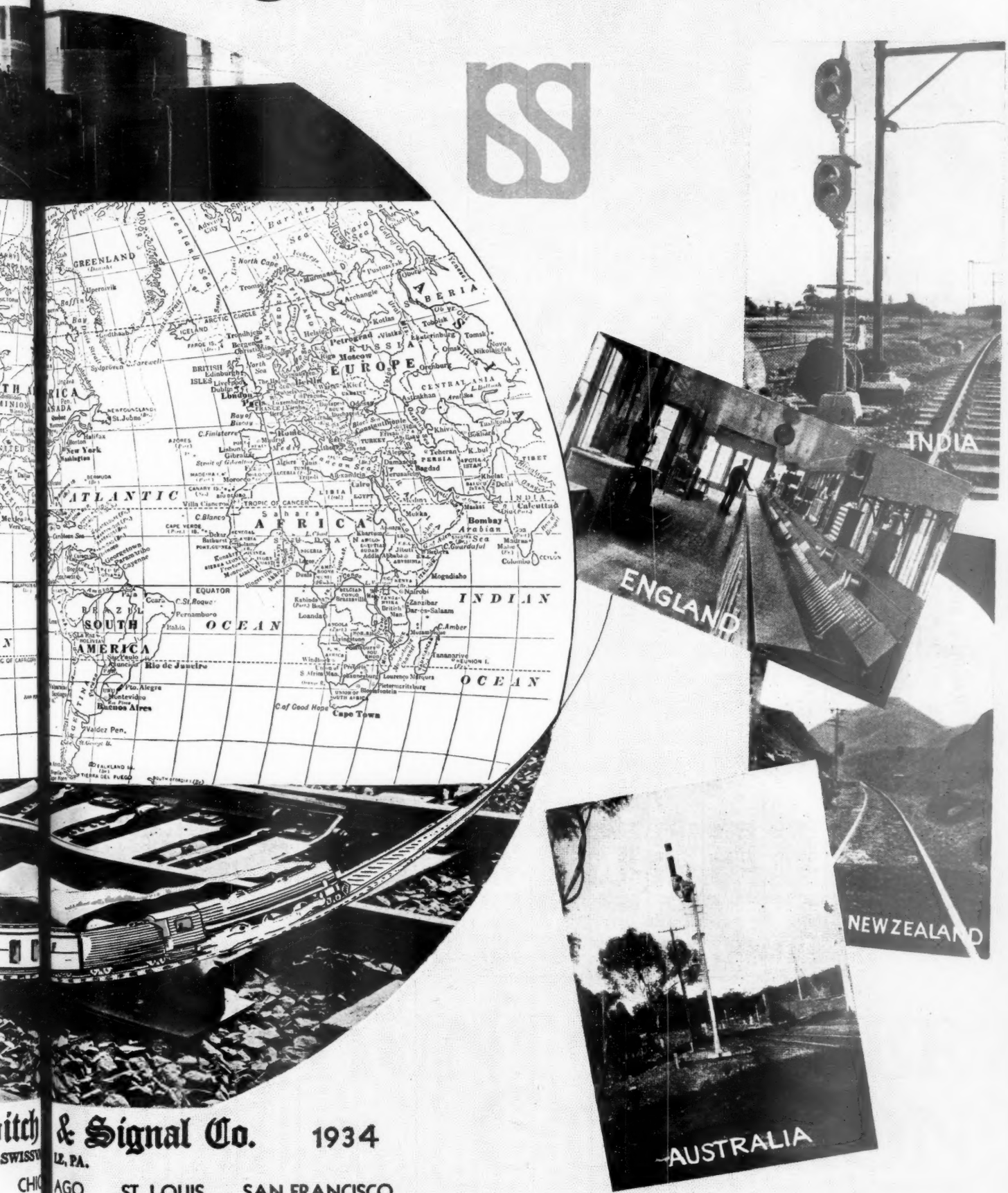
NEW YORK MONTREAL CHI AGO

locking Circles the Globe



& Signal Co. 1934

LE, PA.

AGO ST. LOUIS SAN FRANCISCO

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of—Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New York Connecting	Nov.	20	$206,497	.....	$220,527	$13,105	$7,790	.....	$24,792	$864	$46,551	21.1	$173,976	$143,026	$103,195	$104,332
	11 mos.	20	2,418,502	.....	2,535,478	139,914	82,054	.....	287,918	9,649	519,535	20.5	2,015,943	1,669,373	1,220,173	920,901
New York, Ontario & Western	Nov.	568	699,291	$6,463	777,445	89,583	145,365	$11,940	324,975	23,925	598,250	77.0	179,195	159,159	109,047	113,466
	11 mos.	568	7,469,537	469,585	8,820,796	1,050,241	1,537,895	127,495	3,376,110	260,901	6,378,205	72.3	2,442,591	2,020,452	1,556,801	1,676,203
Norfolk & Western	Nov.	2,184	5,223,110	122,402	5,545,675	431,060	1,240,389	112,956	1,341,268	199,754	3,345,982	60.3	2,199,693	1,589,341	1,837,968	2,759,186
	11 mos.	2,219	60,298,968	1,326,119	63,581,519	5,864,412	12,293,366	1,211,574	14,055,647	2,308,373	35,854,961	56.4	27,726,558	20,771,434	22,381,614	16,909,542
Norfolk Southern	Nov.	932	333,707	8,506	358,898	64,855	42,993	18,390	138,626	20,955	285,799	79.6	73,099	72,302	52,261	—73,616
	11 mos.	932	3,774,313	107,221	4,066,089	739,721	619,706	206,299	1,539,520	250,042	3,355,268	82.5	710,821	397,424	229,165	—260,357
Northern Pacific	Nov.	6,743	3,543,511	221,369	4,096,029	313,610	981,563	131,047	1,549,348	243,209	3,268,058	79.8	827,971	313,877	638,783	535,802
	11 mos.	6,739	37,220,667	2,942,057	43,908,658	4,945,564	10,212,193	1,596,178	16,043,041	2,729,393	36,068,564	82.1	7,840,094	1,940,995	4,977,150	1,489,776
Northwestern Pacific	Nov.	381	141,971	65,996	235,752	34,275	48,418	3,607	129,780	13,605	229,611	97.4	6,141	—10,850	—19,167	—55,216
	11 mos.	402	1,428,526	880,646	2,629,061	363,978	510,685	49,292	1,432,524	154,769	2,507,631	95.4	121,430	—99,712	—200,844	—279,437
Oklahoma City-Ada-Atoka	Nov.	132	22,592	213	24,727	3,324	2,181	557	10,939	1,199	18,200	73.6	6,527	3,151	—3,877	—5,557
	11 mos.	132	273,405	2,931	293,986	42,730	18,558	6,507	109,635	16,303	193,729	65.9	100,257	56,999	—15,702	30,543
Pennsylvania Railroad	Nov.	10,549	20,001,825	4,250,264	26,982,541	2,217,214	5,223,835	525,548	9,483,549	1,265,128	19,006,591	70.4	7,975,950	6,030,338	5,004,463	4,698,714
	11 mos.	10,733	221,250,997	48,255,139	299,655,725	24,514,924	57,853,443	5,626,005	102,982,455	13,729,861	207,570,460	69.3	92,085,265	68,079,047	57,548,059	46,924,241
Long Island	Nov.	399	460,946	1,238,459	1,790,392	125,679	256,204	11,154	625,294	54,142	1,072,469	59.9	717,923	576,103	395,525	288,467
	11 mos.	399	5,281,335	15,780,936	22,195,785	1,567,821	3,037,548	143,179	8,942,709	588,676	14,282,275	64.3	7,913,510	5,712,337	3,751,135	4,729,279
Peoria & Pekin Union	Nov.	18	13,290	.....	85,546	28,388	7,743	1,633	38,637	Cr. 2,439	73,962	86.5	11,584	—4,635	14,046	18,179
	11 mos.	18	109,105	.....	837,718	117,810	75,578	20,461	366,899	75,306	656,054	78.3	181,664	11,222	243,494	207,317
Pere Marquette	Nov.	2,288	1,616,309	46,924	1,766,427	196,213	401,041	58,242	698,424	87,494	1,444,785	81.8	321,642	241,468	105,337	—2,851
	11 mos.	2,300	18,430,944	619,664	20,183,583	2,516,371	4,634,191	616,870	7,667,662	970,386	16,445,566	81.5	3,728,017	2,592,976	1,485,127	144,473
Pittsburg & Shawmut	Nov.	102	57,367	489	58,439	9,012	20,399	1,276	16,348	3,094	50,129	85.8	8,310	8,264	15,274	15,314
	11 mos.	102	597,890	5,101	611,564	92,859	184,959	14,698	176,808	39,281	508,605	83.2	102,959	98,194	113,854	115,086
Pittsburgh & West Virginia	Nov.	138	196,520	.....	207,032	22,914	55,941	11,726	46,441	13,367	156,795	75.7	50,237	27,155	58,491	102,396
	11 mos.	138	2,232,607	.....	2,350,273	228,213	564,628	124,798	452,142	138,912	1,585,520	67.5	764,753	545,470	856,409	547,961
Pittsburgh, Shawmut & Northern	Nov.	195	78,275	221	81,767	13,240	16,017	1,310	28,178	7,086	65,831	80.5	15,936	13,771	9,903	5,938
	11 mos.	196	854,004	2,027	908,089	160,638	188,767	13,875	301,168	71,725	736,173	81.7	171,916	146,883	98,290	—30,752
Reading	Nov.	1,461	3,665,129	226,437	4,105,609	268,289	813,793	68,231	1,579,699	187,076	2,932,478	71.4	1,173,131	1,010,432	1,075,705	998,611
	11 mos.	1,461	40,249,930	2,496,029	45,315,585	2,748,397	8,074,727	760,273	16,476,029	2,027,563	30,258,272	66.8	15,057,313	12,681,556	12,480,132	10,001,670
Penna.-Reading Seashore Lines	Nov.	496	244,624	97,262	364,728	56,678	76,902	8,329	292,962	19,360	454,219	124.5	—89,491	—186,256	—256,881	—67,175
	11 mos.	323	1,680,961	1,847,313	3,735,826	428,105	596,534	56,366	2,375,277	135,548	3,595,989	96.3	139,837	—610,812	—1,218,408	—505,574
Richmond, Fredericksburg & Potomac	Nov.	117	223,546	96,350	435,992	40,208	106,892	8,280	179,169	27,935	367,075	84.2	68,917	44,282	20,902	13,372
	11 mos.	117	3,126,272	1,177,430	5,402,298	529,044	1,057,345	88,315	2,124,102	344,300	4,221,247	78.1	1,181,051	797,851	404,078	405,441
Rutland	Nov.	413	171,496	28,709	264,153	43,562	65,526	10,228	120,271	13,226	252,813	95.7	11,340	—9,466	6,190	5,601
	11 mos.	413	2,023,036	354,825	3,138,909	534,404	603,531	109,420	1,382,553	151,007	2,780,047	88.6	358,862	134,781	266,362	290,735
St. Louis-San Francisco	Nov.	5,249	2,715,607	187,677	3,186,146	602,909	824,485	101,638	1,141,553	141,830	2,821,049	88.5	365,097	99,261	82,036	301,390
	11 mos.	5,263	30,718,733	2,080,470	35,717,106	5,998,662	8,390,111	1,009,460	12,052,921	1,545,741	29,044,366	81.3	6,672,740	3,680,715	3,254,669	3,986,320
Fort Worth & Rio Grande	Nov.	233	38,810	1,054	45,849	23,423	11,205	2,099	21,084	3,514	61,315	133.7	—15,466	—19,652	—25,824	—28,113
	11 mos.	233	316,590	12,711	390,710	190,759	156,418	24,354	236,069	37,133	643,630	164.7	—252,920	—298,111	—367,824	—368,547
St. Louis-San Francisco & Texas	Nov.	262	88,741	514	92,100	16,829	17,404	4,673	34,012	7,613	76,447	83.0	15,653	12,385	—13,995	—37,168
	11 mos.	262	940,654	7,305	983,354	250,610	200,487	53,758	373,100	83,493	956,371	97.3	26,983	—16,879	—314,555	—397,006
St. Louis Southwestern Lines	Nov.	1,884	1,042,357	17,999	1,112,017	113,766	167,287	64,647	376,320	58,805	785,955	70.7	326,062	244,691	166,889	5,136
	11 mos.	1,895	11,282,300	164,830	11,971,597	1,333,339	1,660,131	744,381	3,828,621	691,119	8,289,041	69.2	3,682,556	2,814,464	1,666,641	—174,308
San Diego & Arizona Eastern	Nov.	155	19,225	2,861	23,858	8,312	10,844	1,671	13,134	4,118	38,603	161.8	—14,745	—16,696	—13,747	—24,348
	11 mos.	155	329,021	46,843	396,233	95,856	95,473	19,469	171,229	48,046	436,268	110.1	—40,035	—68,268	—52,070	—281,909
Seaboard Air Line	Nov.	4,310	2,188,102	208,162	2,672,603	445,667	561,672	118,997	935,708	125,541	2,196,238	82.2	476,365	353,542	281,322	3,239
	11 mos.	4,360	23,845,308	2,104,760	28,763,236	4,437,571	5,762,244	1,388,596	10,372,640	1,407,605	23,593,111	82.0	5,170,125	3,086,112	2,284,162	80,802
Southern Railway	Nov.	6,653	4,879,079	626,316	6,068,103	706,707	1,119,918	127,013	2,273,986	236,886	4,497,807	74.1	1,570,296	1,118,574	934,281	575,026
	11 mos.	6,653	57,840,553	6,371,600	70,212,078	7,774,186	12,568,860	1,580,508	24,658,069	2,709,054	49,588,311	70.6	20,623,767	15,290,804	13,607,650	3,043,860
Alabama Great Southern	Nov.	315	297,003	40,154	368,467	47,166	93,446	10,529	126,967	14,350	294,285	79.9	74,182	33,481	37,210	18,729
	11 mos.	315	3,419,989	376,832	4,126,521	570,681	938,309	109,100	1,360,445	157,108	3,156,441	76.5	970,080	562,950	528,920	—213,856
Cinn., New Orleans & Texas Pacific	Nov.	336	728,877	64,812	847,582	105,594	184,576	22,782	241,409	38,854	597,676	70.5	249,906	193,379	147,857	201,893
	11 mos.	336	9,549,996	636,155	10,794,085	1,123,417	1,970,709	251,456	2,726,137	401,459	6,517,598	60.4	4,276,487	3,436,085	3,143,731	1,544,405
Georgia Southern & Florida	Nov.	397	87,856	17,608	122,301	28,500	34,785	1,543	62,145	2,194	130,809	107.0	—8,508	—17,258	—10,848	28,308
	11 mos.	397	1,107,153	207,974	1,503,503	290,417	372,264	19,122	621,401	25,324	1,349,511	89.8	153,992	6,164	—12,308	156,117

Continued on next left-hand page

1934 Economies

TAKE advantage of the savings in locomotive operation which can be effected by the complete application of HUNT-SPILLER *Air Furnace* GUN IRON Parts.

Locomotives completely equipped handle their trains better, consume less fuel per ton mile, require less attention in the roundhouse and cost less to overhaul.

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HUNT-SPILLER GUN IRON

Air Furnace

Revenues and Expenses of Railways

MONTH OF NOVEMBER AND ELEVEN MONTHS OF CALENDAR YEAR 1933—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1932
New Orleans & Northeastern	Nov.	204	$137,472	$18,732	$169,207	$23,379	$21,092	$5,671	$64,741	$8,882	$125,077	73.9	$44,130	$13,237	—$1,336	—$40,787
	11 mos.	204	1,476,124	172,343	1,781,071	277,590	361,772	58,928	659,723	97,389	1,469,489	82.5	311,582	—24,046	—202,872	—404,770
Northern Alabama	Nov.	99	41,862	1,610	45,286	8,050	1,536	968	15,086	1,647	27,283	60.2	18,003	14,362	2,760	7,880
	11 mos.	99	453,804	13,768	484,534	98,414	14,775	11,164	155,067	18,598	298,006	61.5	186,528	138,623	—10,942	—80,764
Southern Pacific	Nov.	9,011	6,643,108	1,193,939	8,637,084	905,469	1,432,012	256,887	3,150,085	506,915	6,406,321	74.2	2,230,763	1,790,580	1,434,691	479,090
	11 mos.	9,059	66,672,403	13,868,546	89,051,497	8,438,570	16,085,148	2,834,296	32,591,610	5,800,706	67,460,507	75.8	21,590,990	12,160,955	8,610,449	7,676,044
Southern Pacific Steamship Lines	Nov.	...	275,327	10,226	309,571	14,900	73,160	15,930	240,581	20,609	365,180	117.9	—55,609	—56,212	—56,086	—59,431
	11 mos.	...	3,556,284	136,228	3,873,597	141,982	1,061,116	175,854	2,649,521	220,959	4,249,432	109.7	—375,835	—386,798	—384,814	—831,400
Texas & New Orleans	Nov.	4,487	1,945,518	191,258	2,441,733	330,395	527,869	112,151	867,265	201,483	2,046,810	83.8	394,923	187,140	39,693	29,312
	11 mos.	4,508	21,020,424	2,144,345	26,324,908	3,690,799	5,410,469	1,221,018	9,309,093	2,289,271	22,036,309	83.7	4,288,599	1,761,289	—241,332	—1,345,719
Spokane, Portland & Seattle	Nov.	552	344,618	28,542	404,759	33,051	51,833	4,933	124,566	14,612	230,637	57.0	174,122	144,585	125,081	—40,873
	11 mos.	552	3,455,108	367,343	4,231,639	377,448	511,687	64,549	1,392,577	185,472	2,545,072	60.1	1,686,567	941,533	806,378	295,752
Tennessee Central	Nov.	287	143,360	3,687	155,759	27,535	23,268	5,362	58,799	10,394	125,196	80.4	30,563	27,302	11,513	27,528
	11 mos.	290	1,626,453	42,158	1,768,319	298,908	261,876	54,174	593,213	107,078	1,314,265	74.3	454,054	420,945	249,170	176,282
Terminal R. R. Assn. of St. Louis	Nov.	55	.....	.....	479,037	42,391	26,545	3,067	207,001	13,125	294,349	61.4	184,688	140,650	204,561	72,780
	11 mos.	55	.....	.....	5,661,406	425,260	356,494	34,340	2,353,464	163,351	3,357,809	59.3	2,303,597	1,381,705	2,111,230	1,154,523
Texas & Pacific	Nov.	1,950	1,418,863	139,809	1,768,884	170,105	299,413	64,929	511,355	101,361	1,164,706	65.8	604,178	500,866	417,677	545,598
	11 mos.	1,950	14,834,646	1,537,817	18,447,797	1,847,501	3,285,446	678,384	5,640,478	1,135,417	12,751,613	69.1	5,696,184	4,572,424	3,357,013	3,364,000
Texas Mexican	Nov.	162	34,799	743	40,866	7,322	11,651	2,912	21,787	6,377	49,542	121.2	—8,676	—13,184	—16,458	—20,804
	11 mos.	162	513,744	7,088	579,719	104,243	138,996	31,929	263,635	73,039	609,427	105.1	—29,708	—80,037	—113,580	—75,810
Toledo, Peoria & Western	Nov.	239	157,256	11	159,538	36,378	13,568	14,791	37,898	7,215	109,850	68.9	49,688	43,888	25,743	5,823
	11 mos.	239	1,539,408	232	1,562,691	383,606	120,358	154,931	401,825	87,392	1,148,112	73.5	414,579	360,225	219,757	93,353
Toledo Terminal	Nov.	28	.....	.....	56,321	3,616	8,921	393	24,336	4,008	41,274	73.3	15,047	7,031	20,366	22,658
	11 mos.	28	.....	.....	662,641	43,436	86,523	4,645	279,337	44,271	458,211	69.1	204,430	120,694	276,216	163,094
Union Railroad of Pennsylvania	Nov.	45	.....	.....	315,755	82,709	113,396	159	127,408	13,586	337,258	106.8	—21,503	—29,364	—18,537	—63,365
	11 mos.	45	.....	.....	3,437,816	550,647	1,068,345	1,422	1,256,735	152,498	3,029,647	88.1	408,169	319,065	633,312	—747,671
Union Pacific	Nov.	3,767	5,308,216	300,868	6,054,598	335,420	1,324,506	97,169	1,735,598	248,444	3,797,550	62.7	2,257,048	1,704,245	1,295,377	1,500,497
	11 mos.	3,767	48,133,742	4,990,312	58,122,529	4,271,600	11,494,005	1,134,344	16,826,758	2,903,513	37,277,574	64.1	20,844,955	15,487,353	12,759,855	13,689,078
Oregon Short Line	Nov.	2,504	1,869,338	73,655	2,051,891	136,401	381,517	25,424	639,814	81,183	1,280,140	62.4	771,751	582,931	456,243	540,818
	11 mos.	2,504	16,187,719	1,194,242	18,720,455	1,903,329	2,622,363	323,901	6,071,789	975,781	12,142,612	64.9	6,577,843	4,003,017	3,021,153	2,493,472
Oregon-Washington R. R. & Nav. Co.	Nov.	2,295	908,606	83,973	1,096,277	139,316	208,018	42,552	458,961	77,521	931,114	84.9	165,163	29,025	—80,675	—52,459
	11 mos.	2,304	9,832,379	965,711	12,175,613	1,751,887	1,680,391	501,892	4,933,732	906,065	9,830,258	80.7	2,345,355	811,437	—345,016	—1,261,436
Los Angeles & Salt Lake	Nov.	1,241	1,124,820	76,707	1,291,581	117,290	209,031	38,915	394,667	51,393	835,596	64.7	455,985	337,869	213,284	131,838
	11 mos.	1,248	10,466,453	1,294,940	12,777,463	1,483,952	1,872,545	450,497	3,894,216	619,210	8,597,025	67.3	4,180,438	2,810,998	1,501,272	1,599,959
St. Joseph & Grand Island	Nov.	258	248,956	1,916	257,170	20,637	25,753	1,992	68,674	10,980	128,276	49.9	128,894	92,704	57,079	45,621
	11 mos.	258	2,329,320	29,856	2,442,798	249,649	289,092	23,786	714,583	127,577	1,406,807	57.6	1,035,991	851,693	559,427	339,974
Utah	Nov.	111	93,310	.....	93,743	8,447	34,865	487	21,339	2,285	67,328	71.8	26,415	13,780	5,513	38,050
	11 mos.	111	874,811	.....	878,890	113,518	258,096	5,368	195,638	51,156	623,442	70.9	255,448	160,870	50,596	92,118
Virginian	Nov.	619	1,078,589	4,100	1,129,199	81,359	218,872	15,906	207,114	23,190	546,007	48.4	583,192	458,192	530,328	479,902
	11 mos.	613	11,748,766	54,395	12,287,406	1,080,272	2,208,408	175,297	2,223,159	302,856	5,981,015	48.7	6,306,391	4,785,606	5,527,216	4,573,189
Wabash	Nov.	2,457	2,609,682	146,692	2,952,711	244,503	551,265	129,110	1,151,070	115,834	2,197,069	74.4	755,642	641,188	296,038	319,505
	11 mos.	2,473	29,198,119	1,826,596	33,305,394	4,264,043	5,659,130	1,423,015	12,799,127	1,351,602	25,581,949	76.8	7,723,445	5,926,790	2,233,478	180,065
Ann Arbor	Nov.	293	241,024	5,557	254,140	21,691	44,488	10,221	114,094	9,959	200,558	78.9	53,582	41,486	19,570	17,347
	11 mos.	293	2,618,688	30,342	2,750,712	291,972	502,559	115,678	1,168,398	105,293	2,185,185	79.4	565,527	412,172	209,109	44,333
Western Maryland	Nov.	891	1,016,572	5,145	1,053,874	120,844	211,979	35,023	283,513	35,744	690,510	65.5	363,364	328,364	361,668	316,895
	11 mos.	891	10,854,146	82,198	11,259,312	1,483,454	2,093,112	349,121	2,835,317	394,537	7,185,966	63.8	4,073,346	3,373,346	3,656,430	3,335,675
Western Pacific	Nov.	1,212	973,718	10,363	1,050,036	121,420	165,777	52,564	353,420	32,691	768,373	73.2	281,663	223,203	145,137	17,955
	11 mos.	1,211	9,216,260	264,416	10,011,082	1,546,476	1,775,964	598,153	3,567,206	382,646	8,136,538	81.3	1,874,544	1,076,200	812,717	590,101
Wheeling & Lake Erie	Nov.	511	689,432	1,646	738,319	86,789	296,208	28,351	255,960	22,132	689,357	93.4	48,962	—4,534	—2,892	127,035
	11 mos.	511	9,191,198	16,632	9,821,593	1,025,773	2,722,493	290,878	2,785,631	272,088	7,095,693	72.2	2,725,900	1,734,363	1,590,035	670,666
Wichita Falls & Southern	Nov.	203	51,528	56	53,228	8,354	6,947	1,413	13,157	2,997	32,868	61.75	20,360	17,653	15,489	17,751
	11 mos.	203	493,640	393	513,561	95,386	75,708	18,193	136,490	38,607	364,384	70.95	149,177	117,956	84,906	72,779